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'S RIJKS-MUSEUM VAN NATUURLIJKE HISTORIE
LEIDEN.

A MONOGRAPH

OF

THE CAPITONIDÆ,

OR

SCANSORIAL BARBETS.

BY

C. H. T. MARSHALL, F.Z.S.,
BENGAL STAFF CORPS.

AND

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LONDON:
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1871.

TO

ALLAN OCTAVIAN HUME, C.B.

BENGAL CIVIL SERVICE,

WHO

FIRST TAUGHT THEM TO TAKE AN INTEREST IN ORNITHOLOGY,

AND TO WHOM THEY ARE INDEBTED

FOR MANY PLEASANT HOURS SPENT IN ITS PURSUIT,

THIS BOOK

IS AFFECTIONATELY DEDICATED

BY

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PREFACE.

The addition of one more bulky volume to the long list which crowds the shelves of our Ornithological libraries, seems to a certain extent to demand an apology; Ornithology has so far shared in the impetus that Natural science generally has received during the last quarter of a century, that it is fast establishing for itself a place and position of importance among the popular branches of scientific study. The opening out of new fields for research has greatly enriched our stock of data, and the knowledge thus acquired of the fauna of the distant portions of the globe has occasioned much interesting discussion; the increased facilities for intercommunication between civilized countries has tended to systematize the observations of naturalists, and acquaint those of each country with what has been acquired, and is being done around them; the works of many eminent naturalists, and the perfection to which natural-history painting has been brought of late years, have drawn a larger share of public attention to this engrossing study than had hitherto been accorded to it; and in the increased interest thus aroused must lie our excuse for adding a volume to our Zoological libraries, already so extensive.

The main object of this monograph is to bring together as far as possible, and arrange in a convenient form, all the information, published or unpublished, regarding the family of the *Capitonidæ*, which has been acquired by naturalists of all countries up to the present date, and, by supplying an accurate coloured figure of each species, to facilitate identification, and to reduce to uniformity the accepted specific names in the various countries. The attention of several eminent naturalists has from time to time been devoted to the different sections of this family; and we must take this opportunity of acknowledging the assistance we have gained from the researches of Messrs. Sclater and Salvin in the American group, of Messrs. Jules Verreaux, T. von Heuglin, E. L. Layard, and Dr. Hartlaub in the African, and of Mr. A. R. Wallace, Mr. Swinhoe, and Drs. Hartlaub and Jerdon in the Asiatic group; and their notes will be found to have been largely quoted. No modern book, however, has appeared embracing the entire family, except the descriptive catalogue of the "Musée des Pays-bas," at Leiden, published in 1863 by Messrs. Schlegel and Goffin; this

contains a complete list accompanied by accurate descriptions. The absence of coloured illustrations and the additions of the last seven years to the family since its publication, are the only reasons which justify the preparation of another monograph whilst the former is in existence.

The compilation of a work of this nature sufficiently accurate to be of any assistance to science, could only be carried out by obtaining the cooperation of the leading naturalists themselves, and the aid afforded by collections and libraries; any measure of success that we may attain to in our object will be due to the cordial support we have received on all hands. The valuable private collections of Lord Walden, Messrs. Eyton, Sclater, Salvin, Sharpe, and Wallace have been placed at our disposal; and these, together with our own collection, the public collections of London, Leiden, Amsterdam, and Liverpool, and the library of the Zoological Society of London, have supplied us with almost all the necessary materials for our work. Dr. Hartlaub, of Bremen, Dr. Peters, of Berlin, and Dr. Salvadori, of Turin, have also kindly aided us; but most of all we are indebted to Professor Schlegel, of Leiden, for his courtesy in permitting us to take to England, to figure, several rare and unique birds, without which we should have found it difficult to complete the work.

The execution of the plates has been entrusted to Mr. J. G. Keulemans; and the accuracy of their execution will increase the value of the book. Many of the Barbets are here figured for the first time, while of some others the only drawings extant are in the older authors, such as Le Vaillant and Buffon, which do not come up to the standard required now.

No labour has been spared to render the work as perfect as possible, and every available source of information has been laid under contribution; but as the science is a progressive one, new matter may probably come to light during the course of publication. To meet this difficulty a short appendix will be added, which it would be desirable in all cases to refer to before determining any thing from the body of the work.

Mr. R. B. Sharpe, the author of a 'Monograph of the Alcedinidæ,' has assisted us greatly in editing the work, in which his experience has been valuable. There are a few errors to be found in the letterpress, unavoidable in a work of this kind; but care has been taken to reduce them to a minimum.

The collection of birds which forms the basis of this work is now in the possession of the Marquis of Huntly, at Aboyne Castle.

INTRODUCTION.

In considering the systematic arrangement of any class of organized beings, the further the researches are carried, and the more closely the phenomena are studied, the more hopeless does the prospect appear of assigning any fixed limits to the minor groups of forms, which blend into one another here and there with a perfection of harmony so true, that the point of contact seems altogether lost; this, indeed, forms one of the strongest presumptions in favour of the adoption, in some form or other, of a theory of evolution as the basis on which to conduct inquiries; but the questions, what hypothesis shall be adopted? and, wherein lies the limit of affinities? are still wrapt in so much obscurity, that in treating of minor groups like the one under consideration it is perhaps preferable to adhere to a simple classification based on external resemblances, and arranged solely with a view to facilitate identification of species.

Though the introduction to a monograph of a single family is necessarily too limited a space in which to enter on a subject embracing the entire animated kingdom, and any discussion of the evidence on which the hypotheses are based must, under the circumstances, be brief, it is in the hope of calling attention to some points which are to many minds obscure, and stimulating discussion on them, that this chapter has been written.

The inquiries concerning the origin of the almost countless species into which the individuals composing the animated kingdom past and present have been ultimately divided, are justly based on the assumption, that, as perfect order and regularity of laws have been found to govern the inanimate universe, so, in a similar manner they pervade also the animated world, and that, if these laws were fully known, the rise of a new genus or species, and its prominent characteristics, might be as readily calculated as the advent of a comet or the eclipse of a planet. As yet the only laws of which we have any definite conception, are those of generation and death: and these, with certain modifications, have been held by the highest modern authorities to be sufficient of themselves to account for all the phenomena of natural life. It appears to be a fact that, notwithstanding the close resemblance to parents which the law of generation entails, no two individuals even under the most favourable circumstances are ever precisely alike; and that if a natural tendency is assumed to multiply these differences in the required direction, they are sufficient to produce specific distinctions, has been taken as the basis of an evolution theory.

This assumption, if persistently followed out, would of course account for the greatest diversities that exist in Nature, if sufficient time were allowed; but it is obvious that, however far it may account for multiplication and modification of species, it cannot account for ultimate origin; for it *presupposes life*: this puts one limit on its action, and the discoveries in geology, though the most diverse opinions have been held respecting their real force, seem to require a still further limitation. The laws of generation apply equally to the vegetable kingdom; and here too we find the universal individual differences; also the close approximation of forms, and apparent gradation from group to group, which characterizes the internal arrangement of each kingdom, is equally perceptible on the line of junction; and the progression of form from vegetable to animal is as complete as from fish to reptile, or from bird to mammal. If these gradations are held to be good evidence of a common origin in the one case, they must be equally so in the other; and the animal world, with the vegetable, must be referred to a single stock; and on the other hand, if they can be shown to be compatible with independent origin in the one case, we may assume that they are so also in the other. From geology, we learn that both animal and vegetable life appeared in the oldest fossiliferous stratum, and that, though the animal forms came later and in less variety than the vegetable, the intermediate stages have neither been discovered, nor has there been any break in the continuity of the stratum in which modification may be assumed to have taken place unrecorded; and further, as the conditions were evidently favourable for preserving their remains had they existed, the inference may fairly be drawn that they did not or, in other words, that the origins of the two kingdoms were independent. If this be the case, the minute gradations of form still existing between animals and vegetables is shown to be no proof of common origin; and we may go one step further, and assume that it may also be no proof in the case of the various orders, families, and genera of the animal kingdom.

If we follow out this idea through the succeeding fossil-bearing strata, we find, speaking in general terms, that the great divisions of the animal kingdom appear on the stage in succession, and that each succeeding era is more or less distinctly characterized by the advent of a new and higher order coexisting with the preceding forms, but with no evidence of minute gradations of forms connecting them. In most instances these new eras are preceded by blank intervals of unknown duration; and in them the intermediate forms might have been assumed to have existed and been destroyed, had we not the evidence of the period of the first introduction of animal life to guide us in assuming the contrary.

Again, we have the fact that throughout the whole period of deposition of fossils up to the present day the animal and vegetable kingdoms have existed side by side, and the gradations of form between them, though fine, are imperfect, and were no finer or more gradual in the Upper Silurian period than they are at the present day. These various results would seem to indicate that the law of generation does not entirely fulfil the conditions of the problem, and that there are other forces controlling and counteracting this multiplication of individual differences, and that the law, instead of being a single force, is rather the resultant of a number of forces which, compensating each other, produce the harmonious whole that we see around us. The minute gradations of species points to certain amount of affinity; the

evidence of geology tends to show that this affinity is *not* universal; the question is, what is the limit?

The only way open to us for investigating the nature of these forces is through analysis and comparison of the effects produced by them. And what are these effects? A vast variety of forms of organisms of every shade and degree, and this variety of form not only before our eyes at the present day, but reaching backward into boundless time as far as the earth itself can carry the record—still an almost endless variety—showing, beyond all question, that, as far back at least as geology can reach, whatever be the duration of that period, the organic portion of the surface of the globe, throughout its stages of progression, has presented a countless variety of forms. Further, as an effect, we have the fact of universal *individual* differences—that is, that no two individuals of any species can be held to be absolutely identical (we may assume this; for it is a natural deduction from what we see to be the case among the higher forms, and, as far as we have any means of testing, it has proved to be so with the lower); and these differences vary in degree and in kind. Lastly, notwithstanding this vast amount of variety, individuals of the same stock *retain their identity* to the *furthest limit* to which we are able to trace them, and, even after a hundred generations, present no greater distinctions from their ancestors than they do from their contemporaries. On this we have tangible points of comparison to start from; for the bones of the Egyptian mummies in one instance, and old collections of butterflies and illustrated works on entomology in another instance, cover quite as wide an interval as we have assumed above. The cultivation of the silkworm in China would cover thousands instead of hundreds of generations, if any ancient pictures were extant, which is quite possible among a nation like the Chinese; and this may at some future time throw a light on the subject. The fact of individual variation is looked upon as a mainstay of the hypothesis of modified descent; but how are we to define the force sufficiently powerful to nullify variation over even the short period we have quoted, and to control it to such an extent that each species is able to retain its identity, and that not a *single* instance of varieties of known descent becoming *settled in possession* of different diagnostic characteristics can be adduced. The ground taken that these individual differences multiplying in the direction most advantageous to the species ought to produce permanent alterations, is merely a deduction. The facts before us, though excessively limited in extent, tend to show that they do *not* produce permanent alterations. It is inferred that species *are* so produced, because it is found possible to conceive that they *might be* so produced, and that *if* so produced the process would fit in with a grand and comprehensive theory: but it is impossible to avoid the admission that, as far as we know from actual proof positive, species are not produced by this process or by any other; and it is yet *unproven* that new species are in the course of formation at all, though of this there are many possible indications.

With regard to the belief in the immutability of species, the strongest objection seems to be the apparently conclusive evidence furnished by geology of the successive rise, prevalence, and ultimate extinction of many genera. This objection even in the present crude state of geological research seems formidable, and must become more so from day to day as fresh dis-

coveries follow one another in this almost boundless field of science; and when to this is added the positive evidences of variation under domestication, the implied evidence to be found in the coexistence of infinitely minute gradations of form in every branch of the animal and vegetable kingdoms, and the hitherto insurmountable difficulties which have surrounded systematists, and up to the present time have rendered all definitions of the usual expressions of classification unsatisfactory, a good *prima facie* case has been made out for accepting the proposition that all known forms of living organisms are capable of spontaneous variation which *may* become hereditary. But that this capability is dormant at most times, that its exercise is an exception to the ordinary laws of nature, and that it is, in the majority of instances, called into play by a change in the outward circumstances involving a wide departure from the ordinary conditions of life, there are many equally (if not more) clear indications throughout Nature. In other words, hereditary permanence seems to be a principle of the law of generation, while enforced changes of condition call into play a power of variation, dormant while those conditions remain unchanged.

The evidence furnished by geology seems to compel us either to admit the hypothesis of modified descent, or hold to the idea of successive creations; though neither of them can in the present state of the science be absolutely proved from it. That hereditary variation is possible, and exists in the manner above stated, we fully admit; but the incalculably small effects that it has produced in recent periods warrant grave doubts as to its being the chief, much less the sole, agent in the origin of species: if it be the correct hypothesis, the geological record ought to show a continually decreasing ratio in the number and diversity of forms of life as we look backwards through time, culminating of course in the single primordial form. On the other hand, if diversified creation be the true solution of the problem, the receding geological strata should exhibit fewer and fewer intermediate forms, and continued isolation of types, till the original parents alone were left of each group of organisms, whether at present existing, or that have existed and are now extinct, widely differing from each other at first in all probability, though their offspring, from numerous complex causes, have varied considerably in adapting themselves to the changing conditions of life to which they have in the course of time been exposed. Geologists must settle which of the two propositions is best borne out by the facts, though we fear that these are not sufficiently decisive as yet to afford satisfactory proofs. The incompleteness of the record from lack of investigation, and still more so from the very inconsiderable fraction of the whole organic remains of past ages that has been thus preserved, will render the actual demonstration of the truth or falsity of any theory impracticable: indeed the evidence conveyed in the obtrusive appearance of new and unexpected genera at late periods of the Earth's history is not more damaging to the one hypothesis, than the absence of heavily charged sub-Silurian fossiliferous deposits is to the other; and even now the forms found in the oldest strata exhibit great diversity.

With regard to the origin of life, the laws of generation do not help us, for they start with presupposing its existence; and if the inquiry is to embrace the origin of inorganic as well as organic matter, we meet ultimately an impassable barrier—a scientific impossibility—the

production of something out of nothing. If, however, the inquiry be limited to the origin of living organisms only, it does not necessarily involve any thing further than a change of condition of matter; for the presence of inorganic substance is certainly far anterior to the first dawn of life. A time must have been when this change took place—when the breath of life first appeared in the organisms on the surface of this earth; and as it has undoubtedly occurred once, it is within the limits of possibility that it may have occurred again and again; and it may even account for the successive and, otherwise, too sudden appearance of new orders and families.

The majority of the experiments on which the theory of modified descent is based have reference to animals &c. under domestication; and in enumerating these sufficient weight does not seem to have been attached to the fact that these domestic species do not exhibit the hereditary permanence that distinguishes true species, and that, when the disturbing influence is removed and the former conditions of life are restored, they lose their identity and in process of time revert to the original type: as an instance of this the case of the dog is most notable, and must have attracted the attention of many people in India and the East. In countries where the wild dog still exists and where it is apparently indigenous, in India especially, as as far as our experience goes, domesticated dogs when left to themselves tend rapidly to assimilate in appearance to the general type of wild dog of the country, this being brought about partly by interbreeding with the wild dogs, and partly by degeneration of race through lack of supervision. In this there is a most significant peculiarity, that the interbreeding does not tend to assimilate the wild dog to the domestic, but the domestic to the wild; and the domestic dog, though undoubtedly higher in the scale of organized beings, and with all the advantages of training to aid him in the struggle for existence (which should, according to the theory of natural selection, have made him the dominant species), is invariably extinguished. This bears out the idea that the domestic dog is a variety, an evidence of one phase of the law of generation (constancy to a type), dormant for a time, reappearing with unimpaired vigour as soon as the external disturbing influence was removed, the inherent capacity for adaptation ceasing to exert itself under a recurrence to the original conditions of life. In the same way, if a flock of the best-bred pigeons, containing pairs of the most diverse forms produced by selected breeding, be left to their own resources, they soon mix promiscuously, and in a few generations produce an anomalous race, every individual of which resembles, except in colouring, and sometimes even in this, the original type of wild pigeon: it is sufficient to illustrate the principle, that the anomalous forms, such as the crop of the Pouter, the tail of the Fantail, and the ruff of the Jacobin, do disappear when not superintended by man. We speak of course from a very limited experience; but, such as it is, it bears out this view of the case, and, as far as we know, no variety as yet produced by artificial interbreeding and selection has exhibited that hereditary permanence which is so marked a characteristic of even the most closely allied of the natural species, such as, for instance, Fieldfares and Thrushes, Willow-wrens and Garden Warblers; and this alone should make us pause before attributing to natural species precisely the same origin as we perceive domestic species to have had. A certain degree of permanence has been obtained in some varieties of domesticated animals;

but it is, we believe, an admitted fact that all good breeds require constant supervision and occasional introduction of fresh blood to prevent deterioration.

Though it is allowable to assume that variation is possible, and that many even of natural species, especially local varieties, may have had a common origin, the position is greatly weakened by attempting to trace for it a universal application; and though many of the wonderful instincts to be found in wild animals and in the inferior forms of life are very probably referable to the hereditary transmission of acquired habits, on this account to take for granted that all are acquired and none inherent raises a host of difficulties at once; and it is here that some of the arguments in support of the hypothesis of modified descent appear overstrained: for instance, in his seventh chapter, on instincts, Mr. Darwin attributes the origin of the well-known parasitic habits of our European Cuckoo to the gradual prevalence of an occasional and accidental action of an ancestor, the progeny which imitated her, through a supposed advantage thereby obtained in the struggle for existence, gradually exterminating the progeny which did not, till the instinct became universal. Now this can hardly account satisfactorily for the entire prevalence of the habit in one species only; for the advantage gained is at best so trifling that it would constantly be overbalanced by individual variations in strength and intelligence quite independent of the habit: and the only other inference to be drawn from it is too flattering to the Cuckoos as a body to be accepted; for it leads us to infer that in the whole race not a single individual is to be found sufficiently short-sighted and imprudent to neglect so trifling an advantage, while among the Swallows and other migratory birds not a single individual, from the beginning of time until now, has had the wit to hit on so simple an expedient; for if one had hit on it, there is as much reason to assume that the cunning Swallow's progeny would have exterminated the others as there is in the case of the Cuckoos.

It will be found difficult, also, to reconcile this universal prudence on the part of the Cuckoos with the theory of the common descent of all organized beings, when we consider the infinite variety of form and intelligence displayed in the animated creation. We know that many a wise man begets a fool, and doeth it to his sorrow; and why the Cuckoos should enjoy such complete immunity we cannot say. It is true that the rejection of this explanation lands us in the dilemma of believing that an Allwise Creator endowed a portion of His creatures with an instinct apparently subversive of the maternal affections; but as even on the other hand we must admit that this instinct has grown out of the unrestrained action of His law, it is not a wide step further to believe that it was from the beginning a peculiarity of this species, and that we have as yet failed to fathom the true intention.

Again, to take another instance, the individuals of the species *Tinnunculus alaudarius*, *Urrua coromanda*, and many other Raptorial birds, which occasionally make use of the deserted nests of Crows and other large birds, as is well known to observers of Nature, should have gained an equally great, if not greater, advantage in the struggle for existence, in the increased leisure obtained to seek for food, and the habit ought long ere now to have become universal with them. In the same way the putting on of dull green or brown plumage, so essential to small forest-birds to protect them from the observation of their

enemies, should have been acquired by all, instead of being confined to a few only, as is the case. The most striking case of all is perhaps that of the females of the Swallow-tailed Butterfly, *Papilio memnon*, assuming the form and colouring of *P. coon*, another somewhat similar Butterfly; the eminent naturalist who first drew attention to the fact, ascribed it to the immunity that the group to which the latter belongs, enjoys from the attacks of birds, and that in this way the mimicking females escape from persecution. We have often watched the Indian representatives of these species, which exhibit the same peculiarity, but have not noticed that any of them were specially liable to the attacks of either birds or dragonflies, so that we cannot from our own experience substantiate this point; granting, however, that it is so, we have a most astounding fact—out of a single batch of eggs, in one portion the transition to another species (supposed to require countless minute gradations and links) complete in a single birth, in the remaining portion the change not even commenced, and no intermediate stage. If this extraordinary phenomenon is to be attributed to an external cause, it would be worth while considering whether this results from a fixed law of instinct or from volition—if the latter, by whose volition it is performed, by that of the parent or by that of the offspring—also why the whole batch do not adopt the remedy, and, lastly, how the question is settled as to which shall put on the deceptive livery and which remain victims. The facts are marvellous; but the explanations are more puzzling still.

As regards the minute variations in colouring and size which separate closely allied species, and especially slight differences peculiar to local distribution, we cannot consider that they offer any obstacle to a belief in the common origin of the species so allied, though it has not as yet been sufficiently proven for us to insist upon it: neither, on the other hand, is it part of our zoological faith to maintain that all gaps in form were once filled up by a countless series of links—though to admit that they may have been so connected opens out a wide field for inquiry, of the deepest interest, and gives a renewed zest to the collection of facts bearing on the subject. Especially valuable are such researches as those of Mr. A. R. Wallace, which reveal to us so much of the really natural history of the animal kingdom, and which enable us to compare the results arrived at through the observations of domesticated animals, and of those whose conditions of life have been modified by the encroachments of civilization, with those of which the conditions have been uninfluenced in any way by man. Though it is quite true that man does not produce variability, it is nevertheless certain that by changing the conditions of life he calls into play that which was previously dormant; and the observations of animals in civilized countries only can never carry the same amount of conviction in support of an hypothesis as those carried on in a wild country and on animals in a primitive state. To the assertion that there is no obvious reason why the principles that have acted so efficiently under domestication should not have acted under nature, we reply that there is a reason to be deduced from the very obvious fact that the wild Dog, the wild Fowl, the wild Duck, the wild Pigeon, the wild Cat, the wild Horse, remain to this day single species, while of the domestic varieties claiming descent from them the name is legion—a fact almost conclusive in showing that these principles do not act where the conditions of life are invariable, but that where these have changed, either through man's influence, climate, or any other cause, the capability of variation has from time to time most probably been

called into play, and may be fairly taken to account for many of the phenomena of Nature It seems also that, so far from there being a constant tendency in Nature to preserve the most divergent offspring of any one species, and thus form new species, and isolate the extremities by extinction of intermediate links, it is precisely these connecting links which in the struggle for existence should survive; for they, being neither the one thing nor the other, can adapt themselves to either condition, and any cause which might tend to exterminate one or the other extreme would not affect to the same extent the intermediate varieties; and they, under the complex system of laws, in ever varying conditions of life would remain in a perpetual state of fluctuation between the extremes, and in all cases be the survivors, an anomalous mixed race being the result.

It is by the introduction of new blood that the greatest energy of variation is produced; and the unmistakable and immediate effects which we perceive to arise from it in a state of domestication ought, if the cases were parallel, to enable us to detect it at once if it were to occur in a wild species; but, notwithstanding the close watch kept over Nature in these days, no approach to it is discovered; and the natural inference to be drawn is, that in a state of nature interbreeding of species does not take place.

To sum up in a few words the drift of the preceding paragraphs will show the chief points on which the laws of modified descent, if true, are as yet obscure.

I. The law of generation does not account for the origin of *life*.

II. Animal and vegetable life, though as closely approximating in outward form as the internal divisions of either kingdom, are almost conclusively shown by Geology to have started independently.

III. The various orders of the animal and vegetable kingdoms seem to have appeared too suddenly on the stage.

IV. The absence of any proof of a general tendency in each era to approximate to the incoming forms.

V. The animal and vegetable kingdoms appear to have progressed in parallel lines with no tendency to divergence.

VI. The oldest stratum known to contain fossils at all contains them in great variety.

VII. The varieties or "artificial species" produced under domestication have not become permanently settled in possession of their specific diagnoses.

VIII. The unsatisfactory nature of many of the explanations of natural phenomena, on the hypothesis of modified descent.

IX. The marked difference between the broods of a wild species and a domestic species, in the similarity outwardly of all the individuals.

X. That an evolution theory requires the power of variation to be unlimited, whereas all experiments tend to show that it has a limit.

The above considerations point to the existence in nature of causes acting in concert with the laws of generation, and which require to be known before the results can with any certainty be predicted. The laws governing the animated portion of the globe are doubtless as definite and fixed as those that govern the motions of the great spheres of the universe; but it must be remembered that an astronomical calculation, based accurately on the known

laws, gives a result very wide of the truth, unless the various disturbing influences, as refraction, parallax, precession, nutation, and all the numerous sources of error are accurately judged and allowed for. In like manner, if we really knew the nature and value of the disturbing influences acting in concert with the law of generation, we should be able to calculate with equal accuracy the problems presented in the phenomena of life.

These remarks are made in no carping spirit, but in the conviction that an evolution theory is not alone sufficient to fulfil the conditions of the case, that the limit to which evolution exists and the causes of limitation are unknown. If it be the correct solution to the enigma —if it be the truth—the pointing out of difficulties can do no damage to its cause: it may stimulate discussion and inquiry; but light and truth go hand in hand. The truth is like a mighty torrent—now in view, now lost to sight in deep gorges—that only flows on with more resistless force for the obstruction of a temporary barrier, and, ever expanding, ever increasing in power, loses itself at last in eternity. *Magna est veritas et prævalebit.*

But further, if the capability of variation in direct descent be so wide and so universally in action as the theory of modified descent requires us to believe, classification on a natural system is simply impossible with regard to time; for we know not, and can never hope to know to any appreciable extent, the lineage of even a single genus, the blanks in the geologic record preventing the recognition of progenitors in their altered posterity; and as regards space, to which indeed almost all classification is limited, any system of arrangement based on actual affinity is equally hopeless; for the degree of relationship by no means varies as the similarity either in form, habit, or structure; and if the lineage be unknown the former can*not* be determined with certainty by the latter. If it could be so determined, of course a close study of the structure and habits of any particular individual would fix positively its nearest relations and exact place in the "schema naturæ." Among individuals of a species it often happens that the most nearly related exhibit wide differences, while the distantly related show strange resemblances, which would entirely mislead a classifier unacquainted with their origin and descent; and if we assume that different species as well as different individuals may be descended from a common stock, we must also take for granted that the same phenomena will occur; and in this case there will be wide differences between closely related species, and great similarity sometimes displayed between those whose connexion is more remote. In short, resemblances in structure and habit do not vary directly as the amount of consanguinity, and, though of great value in any classification, they do not suffice alone to fix the position of a species or genus according to a natural theory.

Let us imagine for a moment a philosopher from another world attempting to classify the different varieties of the human race, which most people agree in considering to be descended from a single original stock; and though he would probably easily define the broad lines of division, when he reached the smaller groups, the difficulties that he would encounter become evident in the aberrant nature of the variations in individual size, shape, and colour, so general among mixed races.

Cases of somewhat analogous arrangements among birds will occur to the mind of every ornithologist; and a few minutes' reflection will convince the reader that to subdivide a

mixed race into groups on minor structural points must outrage a natural arrangement based on affinity, and on the other hand a truly natural arrangement must necessarily group together, in a very perplexing manner, individuals differing in points of structure and feature,—and, further, that though, on account of the long lapse of time required to modify an important structural detail, species differing in this respect may be safely assumed to be very distantly related, if at all, yet the converse, that similarity in essential details of structure necessarily implies close relationship, does not hold good: and in this lies a perpetual stumbling-block in the way of classification based on affinities; for any species that is capable of divergence from the type, must also be capable of convergence to it, and the offspring of a single pair most divergent at one time, may have again at a later period both had a tendency to revert to the original type and thus approach each other, and, though in the present generation absolutely identical, may possibly be the direct descendants of the most dissimilar forms ever assumed by their ancestors; so that we have really no more right to take for granted that two different kinds of Barbet are less remote, in derivation from a parent stock, from each other than a Woodpecker is from either of them; and it is an assumption for which we have no warrant at all to say that one genus or family is more nearly related to any other particular genus or family than to the remainder, on account of the greater similarity in structure: and this point strikes at the root of all classification based on affinity.

With reference to this it is worthy of remark that, as long as the various races of mankind are kept separate, each geographical district presents its own peculiar type of feature and form, easily to be identified, and yet comprising individuals varying widely as to form as well as habit; but as soon as new blood is introduced into any country by interbreeding, the hard line of separation ceases, and a hybrid race is produced, the characteristic feature of which is non-uniformity—that is, that among the half-bred progeny the original types reassert themselves in the most aberrant manner, and with a vagueness that defies prediction as to the nature of the offspring from a study of the parents. This view of the case would lead us to infer that in classification feature is a surer guide than habit, an almost certain guide in a pure species, but deteriorating greatly in value with a mixed race, and, secondly, that geographical distribution is effective in modifying both colour and feature. The vagueness of our knowledge of the past history of the animal kingdom renders it impossible to distinguish clearly between cause and effect; and naturalists are thus enabled to take whichever seems best adapted to bear out their particular views: one, assuming habit as the cause, explains by this means peculiar modifications of structure otherwise unaccountable; another, equally anxious to arrive at the truth, assumes the points of structure as the cause, and points out the habit as a natural consequence. It will be only by observations extending over long series of years that any definite conclusion on these points will be obtained; and for the present (in this particular the scientific world can never too highly appreciate the services of Mr. Darwin in his life-long series of careful experiments) ornithologists cannot perhaps be better employed than in clearing up the existing confusion in synonymy, and thus paving the way for a comparison of the results of observations in all parts of the world.

The cases of variation among birds are, as far as we can see, analogous to those of the human race; and in all species known to be intercrossed with others, the offspring is variable, and each brood contains widely differing individuals, though produced under conditions the most favourable to uniformity, the same father, the same mother, the same birth; whereas, in the wild and presumably pure species, the offspring are almost invariably practically similar both to each other and to the parents; and the presumption is, we think, fairly in favour of the conclusion that such wild species as the ruff and florikin &c., which do produce varied offspring, are mixed and not pure races. The occurrence of allied species of birds in the various geographical districts of the earth, and more especially in adjacent islands and groups of islands, is analogous to the occurrence of the different races of man; for the Saxon is not more different from the Negro than the North-Indian Barbets are from the Central-African; and the inhabitants of adjacent countries even differ quite as conspicuously from each other as do the allied forms of Malayan Barbets. The chief point in which the analogy fails is, that the species of men interbreed more freely than the species of birds; and to establish the origin with certainty is difficult enough with the former, ten times more so with the latter.

When an attempt is made to fix the limits of a single group, the full force of the difficulties of the definition of scientific terms is felt. Few naturalists could give a clear and comprehensive idea of what they mean by the words "species," "genus," "family," so constantly in their mouths. It seems clear that they must either mean arbitrary divisions into groups based on outward similarity, or else imply consanguinity of the individuals so grouped together; and the discussions about allied genera, and positions to be occupied in a natural arrangement have no meaning unless they infer community of descent. For presuming consanguinity we have nothing further to go on than similarity and the known possibility of hereditary variation; and these we have shown to be no sufficient guide for position, and the difficulty before us in insisting on a natural arrangement is as great as ever; for, as almost every complete organ can be shown to be produceable by minute hereditary gradations, we are left with no data whatever for the establishment of non-affinity, and there is, we repeat, no more solid reason than similarity why we should place Barbets near Toucans (as the expression is) rather than near Bee-eaters or any other birds. This being the case, we have left out all consideration of possible affinities in our arrangement, and based the limitation of both families and genera on mere structural resemblances; and the classification we have followed is simply intended to facilitate the identification of the species, and not to imply relationships, which may or may not exist.

For species the best limitation seems to be those birds which ordinarily interbreed only among each other, and of which the offspring are similar both to each other and to the parents. This definition cannot of course be taken to be universal; but it is sufficient in this limited group to afford a standpoint from which to commence. Even here, however, there is a measure of indefiniteness; for, to prevent confusion, we have been obliged to retain as distinct such closely resembling species as *M. Hodgsoni* and *M. lineata*, *M. caniceps* and *M. inornata*; and though as yet no proofs are forthcoming of the interbreeding of these species, and no intermediate varieties have been found, we see no improbability of a future

discovery of such facts when the localities they inhabit shall have been more closely watched; and it becomes necessary to stretch our definition still further, and assume that where different geographical distribution is found permanently associated with a difference of size and colouring, it will simplify matters to describe each form separately, even though interbreeding may take place at the line of junction.

Having thus eliminated the question of affinity, the grouping of the birds into subfamilies and genera on arbitrarily selected differences in structure becomes a matter of extreme simplicity, and bases itself upon intelligible grounds; and we are thus enabled to make divisions on such features as the shape of the bill, and the amount of rictal bristles, which, though of comparatively small value in determining relationships, are particularly useful in arbitrary groups: they are easy of definition, sufficiently prominent to catch the eye; and, last but not least, they are equally available to those who study the birds in life, and to the less fortunately situated naturalists whose acquaintance with most birds is necessarily limited to an examination of the dry and distorted skin.

Of the two features which we have selected, one, the rictal bristles, possessed as they are by many widely differing groups of birds, completely puzzles us; and after studying the birds for some years inside and outside, in life and in death, we are unable even to hazard a guess at the purpose they are meant to serve; the other, the bill, so far from being a typical feature in the scansorial group, is the one which, as Mr. A. R. Wallace has pointed out in a very able paper on the natural affinities of birds, presents the greatest variety of form; and had we professed to have been guided by affinities, the selection of these features might have laid us open to the charge of inconsistency. For the rest, though the grouping is arbitrary, it is for the most part familiar, and we have avoided as far as possible any innovations in the nomenclature. We should prefer ourselves sinking the generic names altogether, and retaining only the three subfamilies; but the definitions would have lost in clearness and conciseness what they gained in limitation of quantity, and, as far as we can judge, identification will be simpler with the minor subdivisions and restricted genera retained; and the advantage thus gained may be found adequate compensation for the extra tax on the memory. Those who do not think so will of course drop the minor subdivisions; but those who do, will, we think, find the grouping sufficiently clear, and, though based on no affinity, still containing nothing to outrage the doctrines of the supporters of a natural theory.

In conclusion a few remarks are necessary with regard to the word "type" so frequently used in this as in all other works on natural history. The word has two distinct applications:—one, the philosophical sense, in which community of descent is implied, and which signifies either the common progenitor, or the existing species possessing its peculiar characteristics most strongly marked; the other, the technical sense, meaning simply the species or genus to which the specific or generic name was first applied. It is in this latter sense that it has been used throughout the body of the work, while in this introductory chapter it has been used in the former or philosophical sense.

CAPITONIDÆ.

RÉSUMÉ OF THE HISTORY.

The *Capitonidæ*, or *Bucconidæ* of Brisson, so called on account of the swelling at the base of the lower mandible, have occupied many different places in the "schema naturæ" according to the classifications of various systematists; and a concise résumé of the positions assigned to them by the principal authors who have treated on their genera, will best serve to indicate their characteristics.

1788. Gmelin (Syst. Nat. i. p. 405) classifies the "*Buccones*" as scansorial birds in the family of *Picæ*, and places them between the *Trogonidæ* and *Cuculidæ*: he includes with them the fissirostral Puff-birds of South America under the same generic name. He gives eleven species of true *Capitonidæ*, being all that were then known.

1790. Latham, in his 'Index Ornithologicus,' follows the same classification, but adds five species, making sixteen in all.

1811. Illiger (Prod. Mamm. et Av.) introduces the genus *Pogonias* for the African species, retaining *Bucco* for the Asiatic. This is the first division of the family into genera.

1816. Vieillot (Dict. d'Hist. Nat.) advances a considerable step beyond his predecessors, as will be seen from the following notes gathered from his 'Dictionary of Natural History.'

"*Barbus*. This genus is divided into two sections, the first has the upper mandible furnished with one or two teeth. The second has a hook at the tip of the bill. They are wood-haunting zygodactyle birds. The first come from West Africa, and are the true *Barbus*; the second come from the New World, and are the *Tamatias* of Buffon." Further on in the book he divides the true *Barbus* into two groups, and introduces the genus *Cabezon* or *Capito* for those *Barbus* which have hitherto erroneously been classed with the species that have grooved or toothed bills, while the distinguishing feature of the genus *Capito* is a smooth bill; under this generic name he places fifteen species; among them are some now classified under *Megalæma* and *Xantholæma*, as well as some that are still classed as *Capito*.

1818. Buffon, in his later work, classifies them as "Scansores," between the *Yuncinæ* and the *Ramphastidæ*, and divides them into two families—*Tamatia* of the New World, and *Barbus* of the Old World. The former, however, includes six fissirostral Barbets and only two scansorial; the scansorial Barbets are included by an error; and this is the first author who has drawn a distinction between the two groups.

1823. Ranzoni, in the 'Elem. di Orn.,' introduced the generic name of *Trachyphonus* for the long-tailed African subgroup, type *T. cafer*.

1827. Gloger, in the 'Observ. sur les noms d'Ois.,' separates as *Nystactes* some of the American species now classed as *Capito*.

1828. Lesson, in the 'Man. d'Orn.,' gives the generic name of *Cucupicus* to the group that had previously been named *Trachyphonus* by Ranzoni.

1829. Cuvier (vol. i. p. 456) follows Gmelin's classification, but divides them into three subfamilies. The Asiatic members he places in the genus *Bucco*; the African in the genus *Pogonias*; and the American, including the fissirostral Puff-birds, in the genus *Tamatia*. This, again, is one step in advance of Vieillot; for it is the first recognition of the Asiatic species as a separate subfamily.

1830. Temminck applies the name of *Micropogon* to the two principal genera of the *Capitoninæ*, taken together, namely *Capito* (Vieillot) and *Trachyphonus* (Ranz.).

1835. Van der Hoeven substitutes the name of *Pogonorhynchus* for *Pogonias* (Illiger), as the latter name had previously been applied to a genus of fishes.

1835. Smith, in his 'S. Afr. Journ.' gives the generic name of *Polysticte* to *T. cafer*, apparently oblivious both of *Trachyphonus* and *Cucupicus*, and their claims to priority.

1835. Müller names the genus *Psilopogon*, giving as type *P. pyrolophus*; we have now four genera (*Capito*, *Pogonorhynchus*, *Trachyphonus*, and *Psilopogon*), *Bucco* being still in use for the Asiatic species.

1837. Lesson introduces the genus *Barbatula* to represent the small African Megalæminæ; type, *B. pusilla*. There are now five genera.

1837. Swainson (Nat. Hist. Cab. Enc. ii. p. 311) groups the *Capitonidæ* with several other families under the head "*Bucconinæ*," with the following diagnosis—"Bill surrounded with long bristles; tail short, soft,"—and divides them into the following genera—*Asthenurus*, *Picumnus*, *Bucco*, *Micropogon*, *Pogonias*, *Yunx*, *Oxyrhynchus*. The *Picidæ* he arranges between the *Psittacidæ* and *Certhiadæ*. This classification of the group being manifestly erroneous, it is unnecessary to dilate upon it.

1838. Next in order comes Temminck (Pl. Col. vol. iii.); he was the first author who clearly distinguished the Fissirostral from the Scansorial Barbets; the former he places in a separate family under *Tamatia*; the latter he divides into three subfamilies—*Micropogon*, *Bucco*, and *Pogonias*,—which, under other names, is similar to our method of classification, the first comprising *Capito*, *Trachyphonus*, and *Caloramphus*, the second *Megalæma*, *Xantholæma*, *Psilopogon*, and *Barbatula*, the third *Pogonorhynchus*. He gives a series of very fair plates of a number of species of this family; and his work contains a great deal of information about the Asiatic genera. From this date the scansorial Barbets are classed as a distinct family; and at that time about three-fourths of the species were known. This author also introduces the genera *Psilopus* and *Xylopogon*, both of which have fallen into disuse.

1839. In this year the Malayan species *C. lathami* was first generically separated from the others by two authors, Lesson naming it *Caloramphus*, and Eyton proposing *Megalorhynchus*; of these two, Lesson's name has the precedence. This makes the sixth genus as now accepted.

1840. Mr. G. R. Gray (Gen. of Birds, ii. p. 428), in his magnificent work on the Genera of Birds, gives a very comprehensive account of this group; and at the time he wrote the majority of the species were well known. He joins them to the *Picidæ*, making them the first subfamily and naming them *Capitoninæ* from *Capito* of Vieillot, the oldest generic name which rightly belongs to this family. They are immediately followed by the *Picumninæ*, through which they are supposed to be allied to the *Picidæ*. Mr. Gray divides them into five genera:—1st, *Laimodon*, a name substituted for *Pogonias* (Illiger), but which must yield precedence to *Pogonorhynchus* (Van der Hoeven); of these he enumerates ten species. 2nd, *Megalaima*, substituted for *Bucco* of the older authors, for the Asiatic group; this name, with a slight correction in the spelling, is the name at present in use. Under this head are twenty-nine species, twenty-one of which properly belong to this genus, three are synonyms or untraceable, the others have since been separated into other genera. 3rd, *Capito* includes all the *Capitoninæ* then known, except *Caloramphus*. 4th, *Caloramphus*. 5th, *Psilopogon*. This introduction of *Megalæma* makes the seventh genus as now accepted.

1850. Bonaparte reverts to the name *Bucconinæ* for this family, and places them between the *Picumninæ* and the Puff-birds, which he terms *Capitoninæ*; he divides them in the following manner, introducing several new genera:—

1. *Gymnobucco* (n. g.), type *G. calvus*.
2. *Psilopogon*.
3. *Psilopus*.
4. *Xylobucco* (n. g.), type *X. scolopaceus*.
5. *Trachyphonus*.
6. *Micropogon*.
7. *Eubucco* (n. g.), type *E. bourcieri*.
8. *Bucco*, type *M. virens*.
9. *Megalaima*.
10. *Barbatula*.
11. *Pogonias*.

Of the three new genera, *Eubucco* has since lapsed, the other two stand, making altogether nine genera.

1851. Des Murs redescribes *P. pyrolophus*, giving it the fresh generic name of *Pseudobucco*. He also alters the name *Pogonorhynchus* to *Pogonoramphus*. Still nine genera.

1852. Von Kreling again describes *P. pyrolophus* under a third generic name, *Buccotrogon*. Both these names yield priority to *Psilopogon*.

1854. Bonaparte further divides Gray's genus of *Megalaima* into *Chotorea*, type *C. javensis*, *Cyanops*, type *C. asiatica*, *Xantholæma*, type *X. hæmacephala*; of these three, only one has been retained as sufficiently distinct, making now ten recognized genera.

1855. Sir W. Jardine describes a new genus, *Tetragonops*, type *T. ramphastinus*, making eleven genera.

1855. Mons. Jules Verreaux separates one of the small African *Megalæminæ* under the new generic name of *Buccanodon*, type *B. duchaillui*; this species is undistinguishable, except in colouring, from *Xylobucco* of Bonaparte. Also he separates the new genus *Tricholæma*, type *T. hirsuta*, making twelve recognized genera.

1860. Heine alters the name of the genus *Gymnobucco* to *Gymnocranus*; this alteration is inadmissible.

1861. Mr. Sclater, in a paper on the American species in 'The Ibis,' gives a note on the classification; he ranks them as a distinct family.

1862. Dr. Jerdon, in his valuable work on the 'Birds of India,' follows Bonaparte's classification of the Asiatic group, and places them next the *Indicatorinæ*.

1863. Goffin, in the catalogue of the Leyden Museum, gives a most carefully worked-out monograph of the *Buccones*. He, however, erroneously places the fissirostral *Bucco* in the same family with the *Capitonidæ* of this work. He divides this latter into three great genera, *Pogonorhynchus*, *Megalaima*, and *Capito*, retaining, however, most of the other genera as subgenera.

1868. Dr. G. R. Gray, in his Catalogue of the British Museum, gives them rank as a separate family, next to the *Picumninæ*.

1870. The genus *Stactolæma* is proposed, with type *S. anchietæ*, in the P. Z. S. (p. 118).

From the above extracts it will be seen that for a long time the scansorial Barbets were coupled together with the fissirostral Puff-birds. Mr. A. R. Wallace was the first to point out the claims of the Scansores to rank as a separate order; and this arrangement, being supported by distinctive characters both in habit and structure, has been almost universally followed by the later authors. The general definition of the two orders thus limited may be taken as follows:—

Scansores.—Those arboreal birds which use the feet only in pursuit of food, and in which the outer toe is versatile or turned completely backwards.

Fissirostres.—Those arboreal birds which use the wings in pursuit of food, and have the feet adapted for perching only.

As a natural accompaniment to these habits, the feet are found to be large and strong in the scansores, small and comparatively weak in the fissirostres; the wings are short and rounded in the former, long and well developed in the latter. The subjoined Tables will illustrate this point; the numbers in the second column (being the comparative length in terms of the ulna, which is considered as the unit) are calculated in order to facilitate comparison. It will be seen that among the fissirostres the ulna is invariably longer than the tibia, and, except in two instances, more than twice the length of the tarsus; while among the scansores, on the other hand (with the exception of the true *Picidæ*), the ulna is shorter than the tibia, and less than twice the length of the tarsus.

Fissirostres.

Name.	Humerus.		Ulna.		Tibia.		Tarsus.	
Podargus humeralis	29	·83	35	1	25	·72	11·5	·33
Caprimulgus europæus	14·5	·80	18	1	12·5	·70	6·5	·36
Harpactes Reinwardtii	13·5	·93	14·5	1	12	·83	6·5	·45
Calurus fulgidus	16	·80	20	1	14	·70	7	·35
Monasa torquata	11	·85	13	1	12	·92	9	·70
Chelidoptera tenebrosa	12	·80	15	1	10·5	·70	5	·33
Trogon melanocephalus	12	·86	14	1	11	·82	8	·57

Scansores.

Name.	Humerus.		Ulna.		Tibia.		Tarsus.	
Ramphastos erythrorhynchus	22	·65	34	1	34	1	20	·59
Pteroglossus Bailloni	14	·74	19	1	22	1·16	13	·68
Megalæma corvina	14	·77	18	1	22	1·22	12	·66
Psilopogon pyrolophus	12	·75	16	1	21	1·31	11	·61
Trachyphonus purpuratus	12	·96	12·5	1	18	1·44	11	·88
Centropus phasianus	26	1·18	22	1	34	1·55	22	1·00
Piaya circe	13	1·04	12·5	1	22·5	1·80	15	1·20
Cuculus cinereus	14·5	1·03	14	1	15·5	1·10	9	·64
Turacus gigas	30	1·11	27	1	45	1·66	21	·77

Picidæ.

Name.	Humerus.		Ulna.		Tibia.		Tarsus.	
Gecinus viridis	1,6	·80	20	1	17	·85	12	·60
„ dimidiatus	14	·87	16	1	18	1·12	10	·62
Hemilophus validus	15	·88	17	1	17	1·00	12	·70
Campethera brachyrhynchus	10	·87	11·5	1	12	1·04	6·5	·56
Chloronerpes aurulentus	12	·80	15	1	13	·87	8	·53
Melanerpes formicivorus	13	·81	16	1	14	·87	8	·50
Picus major	12	·75	16	1	14	·87	8	·50
Picumnus Temminckii	6	·86	7	1	8	1·14	6	·86

In addition to this, the scansores have the soles of the feet usually balled, while in the fissirostres they are flat; the bodies of the former are heavy and awkward, in the latter the bodies are light, and the plumage fluffy. These last distinctions, though undefinable and comparative only, are very sure guides to the field ornithologist, and, in addition to those previously enumerated, make clear boundaries to the groups. The dimensions are all taken from Eyton's 'Osteologia Avium.'

The foregoing remarks will serve to separate the Barbets (*Capitonidæ*) from the Trogons (*Trogonidæ*) and the Puff-birds (*Bucconidæ*); and we have now to consider the distinctive points which entitle them to rank as a family apart from the remaining subgroups with which they have been at one time or another included, and which all belong to the Scansorial group, and present more or less close analogies to them.

1st. The *Ramphastidæ*, or Toucans, are very closely allied to the Barbets; and the differences between them are the most difficult of all to define satisfactorily. In the genus *Ramphastos*, to which the best-known Toucans belong, the immense development of the bill is a sufficient guide; but in the genus *Pteroglossus* the bill sometimes approaches very closely both in form and size to that of *Megalæma*. The most conspicuous feature is perhaps the tail, which is comparatively much longer in the *Ramphastidæ* than in the *Capitonidæ*. Also the general size and geographical distribution will assist in identifying them: the geographical range of the former is far more limited than that of the latter; and where they occur together, the latter seldom exceed one-third of the size and weight of the former.

2nd. *Picidæ*, or Woodpeckers, present many characteristics, the stiff serrated tail and hard wedge-shaped beak being the most conspicuous, which are wanting in *Capitonidæ*: a very close approach between the families, however, is made by the *Picumninæ* on the one hand, and the genus *Barbatula* on the other; the wedge-shaped stiff tail has disappeared in the former, giving place to the soft, rounded tail of the Barbets; they may, however, be still distinguished by the tongue, which is extensile in *Picumnus* as in true *Picus*, and short and cartilaginous in *Capitonidæ*.

3rd. *Cuculidæ*, or Cuckoos, may be distinguished by the outer toe, which is versatile in them, and turned completely backward in *Capitonidæ*; further their comparatively small beak, long tail, sombre plumage, and many other minor points exhibit their dissimilarity. The genus *Chrysococcyx*, or Emerald Cuckoos, are an exception in colour of plumage, but present the same differences in form. The approach would appear to be between *Coccystes*, or Crested Cuckoos, on the one hand, and the African genus *Trachyphonus* on the other, though even here the difference in formation of the feet and arrangement of the toes holds good. Lastly, in the *Cuculidæ* the humerus always exceeds the ulna in length, while in the *Capitonidæ* the reverse is the case, the nearest approach being still in *Trachyphonus*.

4th. The *Psittacidæ*, or Parrots, all possess the well-known form of strongly hooked upper and truncated lower mandible, making the bill higher at base than it is long, a form to which there is hardly any approach among the *Capitonidæ*.

The genus *Indicator* is closely allied to the Barbets, but may be distinguished by the bill, which is smaller and truncated. Besides these there are no families sufficiently analogous to require notice here.

ON THE GENERA.

In this chapter we have divided the family, primarily, into three subfamilies, and, secondarily, into thirteen genera, at the same time noting the most prominent characteristics of each genus; and, thirdly, we have endeavoured to define the distinguishing colorization of each species, so as to enable the reader to identify any particular bird belonging to this family without difficulty.

We propose to divide the *Capitonidæ* into three great subfamilies as follows:—

A. Rostro dentato . . . . . *Pogonorhynchinæ.*

B. Rostro lævi, setis rictalibus longis, vel post nares densis, maxillæ mandibulæque apice æquo . . . . . *Megalæminæ.*

C. Rostro lævi, setis rictalibus minimis vel deficientibus, maxillâ incurvâ apice ultra mandibulam breviter protenso . . . . . *Capitoninæ.*

The scansorial Barbets are a group of birds inhabiting suitable localities throughout the tropical regions of Asia, Africa, and America. They are unknown in Australia and Europe. Though strictly arboreal in their habits, and living only in forest districts or open countries

interspersed with groves of trees, they are neither shy nor difficult to approach. Where the districts they are found in happen to be at all thickly populated, the Barbets show no disposition to retreat to more secluded quarters, but take up their abode in gardens and frequently breed in trees close to the houses. They usually keep to the tops of the trees, but may occasionally be seen creeping among the branches of small bushes and underwood. Their food is fruit, seeds, buds, and occasionally insects; these latter are very seldom resorted to in Asia, more frequently in Africa, and with some American species they form the staple food. They are not gregarious, though a great number may sometimes be seen together in a fig-tree at the fruit-season. They live in pairs during the breeding-season, which is in the spring, and commence moulting in September. They rarely, if ever, descend to the ground, and appear to move from tree to tree only when compelled to do so in search of food, or when disturbed by an intruder. Their flight is powerful, but heavy and undulating, very similar to that of a Woodpecker. A curious instance of their disinclination to travel is seen in the fact of the Himalayan lineated Barbet (*M. Hodgsoni*) and the hoary jungle Barbet (*M. caniceps*) never crossing the narrow valley of the Dehra Doon, though both are abundant in their respective boundaries—also that the Blue-faced Barbet (*M. asiatica*) is confined to the valley of the Jumna, in the district between Mussoorie and Simla, though there are many other valleys apparently equally suitable. When not in pursuit of food, they sit motionless among the foliage near the tops of the trees, and exhibit none of that vivacity, which is so marked a characteristic of the Passerine birds, among which they have been sometimes erroneously classed. Their voice is loud and ringing, it consists almost always of one, two, or three syllables, given out with extraordinary power, and may be heard at midday and on a moonlight night when all other sounds are hushed; some of the American species have, in common with the Toucans, the habit of jerking their tail up over their back when they utter the call. The male and female occasionally keep up what appears to be a calling-match for about ten minutes, and then suddenly cease.

As far as is known, they all build in holes of trees, which they make for themselves in soft or decayed branches; no lining is needed for the nest, a few of the broken chips being left at the bottom of a hole; the entrance is circular and neatly bevelled, resembling that of a Woodpecker; the hole is generally about eight or ten inches deep, varying, of course, with the size of the bird. They lay three or four shining white eggs with rather thin shells, and rather elongated blunt oval in shape, both ends being nearly similar. They are laid in the latter end of April and beginning of May in Northern India.

Barbets are occasionally caged; but they are very seldom brought to England, and do not bear confinement very well; consequently little is known of them in this country, except to ornithologists. An interesting account of one of them in captivity, by Mr. Layard, will be found quoted under the heading of *M. zeylanica*.

Their plumage, though very brilliant, is tasteless and too gaudy, and their shape is heavy and ugly, which will account for their skins not yet having been promoted to the positions with which pretty birds' feathers are generally associated in the minds of the non-ornithological public.

The following osteological characters of this group are taken from Eyton's 'Osteologia Avium':—

Cranium more flattened than among the *Picidæ*, with which they have been classed; no foramen in the orbital septum, except that through which the optic nerve passes; the channel for the masseter muscles large, extending to the occiput; occipital ridge well marked.

Sternum broad; fissures on the posterior margin very deep, extending for more than half the length of the sternum; the anterior edge, behind the junction of the coracoids, very much prolonged; lateral edges constricted behind the articulation of the ribs, which is very far forwards; keel very shallow; inferior edge quite straight; anterior edge also straight, produced nearly to the end of the manubrial process. *Pelvis* with the ischium slanting very much outwards, the line of demarcation along the junction of the ilium with it nearly obliterated: two spines are apparent on its posterior margin, one on its inner edge, the other near the centre; obturator foramen similar to that of the *Picidæ*, but narrower; ischiadic foramen also smaller. *Ribs* narrow; styliform process very broad; coracoids longer than among the *Picidæ*; furculum weak, the rami merely united by a ligament. Wing- and leg-bones similar to those of the *Picidæ*.

The following details of the soft anatomy were entirely taken from the manuscript notes of Mr. Brian Hodgson, and, though referring only to North Indian species, are probably characteristic of the whole group.

The stomach is of median subequal thickness, rather muscular, and gizzard-like in form; the intestinal canal is rather short, very capacious and subequal throughout; there are no cæca, and the general formation of the intestines seems more adapted for vegetable than animal food. The inner coat of the stomach is tough and grooved in the adult bird. The orbits are nude, and there is no membrane over the nostril.

A. Pogonorhynchinæ.

This subfamily has the strong characteristic of toothed bills, which feature makes it easy for a naturalist to distinguish species belonging to it at once. Two genera are found in Africa; and the third was discovered, about fifteen years ago, in South America. The former have the upper mandible toothed, and the latter the lower one at tip.

A. Rostro dentato.
  A′. Maxillâ dentatâ.
    A″. Pectore setis nigris ornato . . . . . *Tricholæma.*
    B″. Pectore setis haud ornato . . . . . *Pogonorhynchus.*
  B′. Mandibulæ apice bifurcato . . . . . *Tetragonops.*

1. Genus Tricholæma.

Characteristics.—The distinguishing feature on which this genus was separated from *Pogonorhynchus* by Verreaux is the long, fine, black bristles, which are formed by the pro-

longation of the shafts of the breast-feathers: as this is a point which could not well be overlooked, and which appears to warrant a higher than a specific separation, we have retained the genus. The bill is black, the culmen rounded and inflated at the base, and arched slightly towards the tip; the upper mandible is furnished with one well-defined and one rudimentary tooth, the rictal bristles are black, coarse, and long. Wings moderate in length, fourth and fifth quills longest; tail rather short; legs and feet similar to those of *Pogonorhynchus*.

There is only one species known of this genus, which comes from the west coast of Africa. Verreaux made two species; but his *T. flavipunctata* is clearly only the immature bird of *T. hirsuta*. They are found in pairs in the great forest of Gaboon, and feed on insects, which they find in the crevices of bark. They build in holes of trees.

A″. Pectore setis nigris ornato.
a. Supra nigra flavipunctata . . . . . *T. hirsuta*.

2. Genus Pogonorhynchus.

Characteristics.—Bill as long as or a little longer than the head, culmen rounded and arched, and deeply grooved in two species; upper mandible furnished with one or two powerful teeth, inflated at the base, and slightly compressed towards the tip; nostrils rounded and basal; rictal bristles numerous, coarse, and black (except in *P. leucocephalus*, which are white); plumage soft and loose; wing moderate in length, third, fourth, and fifth quills subequal and longest; tail medium length, being about one-third shorter than the wing, and consisting of ten feathers; legs somewhat longer than in the *Megalæminæ*; the feet are powerful, the exterior toes being much longer than the interior ones.

We propose, for the sake of simplifying identification, to divide them into two subgenera. The first includes the larger species, with yellow bills, more powerful teeth, and coarser bristles. Three of them (*P. dubius*, *P. rolleti*, and *P. bidentatus*) are much alike, having the upper plumage black and the underparts red and black, with white flanks and rump; the fourth species (*P. melanopterus*) differs in colouring; but the above-mentioned characteristics will serve to distinguish it. The second contains all the remaining species; they are smaller birds, with black bills, and the second tooth is rudimentary or wanting; the bristles are also less developed.

Their food consists of wild fruits, berries, and insects and their larvæ. It is difficult to say what use the teeth are put to. Mr. Monteiro suggests that they may be for stripping off bark, as he found the stomachs of some full of green bark. They nestle in holes of trees; their eggs are white. They have a loud, ringing, but monotonous note, which is generally repeated quickly several times, while they bow the head from side to side. They are usually found in the depth of the forests among the higher branches of the trees; but Mr. Ussher, the Governor of Fantee, mentions finding them in low thorn bushes (they most probably had descended in search of food). The young appear to remain with their parents until old enough to pair.

B″. Maxillâ dentatâ, pectore setis haud ornato.
  a. Majores, robustiores, rostro flavescente, valde dentato.
    a′. Gutture coccineo, pectore nigro . . . . . *P. dubius.*
    b′. Gutture pectoreque coccineis . . . . . *P. bidentatus.*
    c′. Gutture pectoreque nigris . . . . . *P. rolleti.*
    d′. Fronte rubra, pectore brunneo . . . . . *P. melanopterus.*
  b. Minores, rostro nigro.
    a′. Capite toto albo . . . . . *P. leucocephalus.*
    b′. Capite guttureque coccineis.
      a″. Supra niger . . . . . *P. abyssinicus.*
      b″. Supra terricolor, sulphureo lavatus . . . . . *P. torquatus.*
    c′. Pectore albescente, coccineo variegato . . . . . *P. vieilloti.*
    d′. Pectore flavescente, brunneo maculato . . . . . *P. undatus.*
    e′. Supra niger, sulphureo variegatus.
      a″. Fronte rubra.
        a‴. Gutture nigro . . . . . *P. leucomelas.*
        b‴. Gutture albo . . . . . *P. diadematus.*
      b″. Fronte nigra, superciliari albo . . . . . *P. melanocephalus.*

3. Genus Tetragonops.

Characteristics.—The tip of the lower mandible is deeply bifurcated, and the apex of the upper fits into the division; the bill is very powerful, and in *T. ramphastinus* almost square at the base, the culmen being perfectly flat; the nostrils, which are round and basal, are situated in two grooves. Sir William Jardine, in first describing this species, mentions that the bill is richly coloured, the apical half being bluish black and the rest rich yellow and orange; this, with the abnormally coloured loose plumage, gives the bird the appearance of a small Toucan. The only other known species has the bill rather modified in form; but the upper mandible is also furnished with two teeth near the tip; it is not so brilliantly coloured. Both have a shining occipital crest, and are larger than the other American *Capitonidæ*; but little is known of them yet, as they are very rare birds.

B′. Mandibulæ apice bifurcato.
  a. Gutture cineraceo . . . . . *T. ramphastinus.*
  b. Gutture olivaceo . . . . . *T. frantzii.*

B. Megalæminæ.

This subfamily is separated from the first one by its smooth upper mandible, and from the third by the form of the bill and the rictal bristles. The bill is as long as or longer than the head, much inflated at the base, being as broad as it is high; the culmen is raised between the nostrils. The upper mandible slopes slightly towards the tip, the anterior half of the gonys inclines upwards, giving to some species the appearance of having the bill turned upside down. The bill is compressed towards the tip; the bristles are long, coarse, and black; the nostrils rounded and basal. The wings are moderate in length and rounded, not adapted for long flights; the first primary is very short, the fourth, fifth, and sixth are

in most subequal and longest, sometimes the third, fourth, and fifth. The tail is short (except in *Psilopogon*) and consists of ten feathers. The legs are short and stout, the feet long and powerful. They are able to climb up or down trees with ease. They nidificate in holes of trees, which they generally make themselves. Their food consists of fruits, berries, insects and their larvæ. We propose to divide them into the following genera:—

B. Rostro lævi; setis rictalibus longis, vel post nares densis; maxillæ mandibulæque apicibus æquis.
  A'. Culmine lato, orbiculato ad basin; setis rictalibus nigris.
    A''. Rostro ad apicem compresso et acuto . . . . . *Megalæma.*
    B''. Rostro brevi, lato et obtuso . . . . . *Xantholæma.*
  B'. Culmine acuto; setis rictalibus nigris.
    A''. Maxillâ rectâ, mandibulâ valde curvatâ ad apicem . . . . . *Xylobucco.*
    B''. Maxillâ mandibulâque æqualiter curvatis . . . . . *Barbatula.*
  C'. Setis densis post nares coccineo late marginatis . . . . . *Psilopogon.*
  D'. Capite calvo, vel summo plumato; setis densis post nares flavescenti-brunneis . . . . . *Gymnobucco.*

By the above it will be seen that we have taken colour of the bristles as a primary distinction in two genera; our reason for doing so is, that it is a feature which will catch the eye at a glance, and about which no mistake can well be made. *Megalæma*, *Xylobucco*, *Barbatula*, *Gymnobucco*, and *Xantholæma* are all treated as one genus by Gray and Goffin, under the name *Megalæma*, which also includes *Chotorea*, *Cyanops*, and *Buccanodon*; the three latter, being unable to separate, we have expunged, but have considered, as will be seen by our table, that the former may be retained.

Dr. Jerdon says of the Megalæminæ that, though they are placed by Swainson and Gray as a subfamily of the *Picidæ*, their short tongue, non-climbing habits, and general structure warrant a higher separation: the plumage resembles in structure that of the *Ramphastidæ*; the feathers possess the supplementary plumes in both. Their clavicles are imperfect, and do not in general, if ever, unite to form the furcula as in Toucans. The cranium is broad, angular, and weak; the sternum has the keel low, with two emarginations on each side; the œsophagus is wide, the stomach slightly muscular; and the intestinal canal is short and wide, without cæca; they have no gall-bladder; the tongue is long and thin, slightly barbed in some of the larger species.

Mr. Blyth, in his commentary on Dr. Jerdon's work, says it is an error to subordinate this family to the *Picidæ*, as they hop like ordinary *Passeres*, but that they are more nearly allied to the *Ramphastidæ*, and that if the larger species of this latter family were unknown, such a genus as *Aulacoramphus* would have been assigned to the group of *Capitonidæ*. This author does not credit the fact that the *Capitonidæ* can climb.

1. Genus Megalæma.

Characteristics.—Bill with the margin smooth, sharp and compressed at the tip; culmen broad, rounded at base, and curved; rictal bristles, which are strongly developed, black.

Head broad and flat. Body heavy. Plumage soft and loose, generally green, with parti-coloured head and throat. Wings moderate in length, first primary very short, fourth, fifth, and sixth subequal and longest. Tail short and slightly rounded. Tarsus bare, short, and stout. Feet powerful, the exterior toes being nearly as long as the tarsus; the interior front toe is two-thirds, and the hind toe one-half the length of the outer ones.

Their flight is heavy and undulating, and they seldom wander far. Wild figs are their favourite fruit, and they will not eat insects, apparently, when fruit or berries are to be had. By the aid of their powerful bill they excavate circular holes in the soft wood or decayed branches of trees, generally on the underside of the bough; in these they lay their four white eggs without any further preparation in the way of a nest. They are tolerably abundant in the localities they frequent, and, not being shy birds, it is not difficult to get within shot of them, their great protection being the likeness in colouring of their plumage to the leaves among which they sit. Even when they utter their loud ringing note, like the striking of a small bell, it is difficult to find the exact spot where the sound comes from; it seems to come at one time from one side of the tree, and then suddenly it is distinctly heard from a far off branch, while the bird is all the while at the very top of the tree: this may be in some way accounted for by reason of the bird bowing its head from side to side as it repeats the notes, thus throwing the sound in opposite directions. The fact of their climbing has been a vexed question; we, however, have no hesitation in saying that they can climb, but that they do not often use this mode of progression, though African members of the *Capitonidæ* frequently do.

Eight species are found in Continental India, one in China, one in Hainan, one in Formosa, four in Ceylon, one in the Philippines, two in Cochin China, and the remainder in Indo-Malayana.

This genus we have separated into three subgenera: the first contains *M. virens* alone; the second contains all those with bright and many-coloured heads; and the third is the green group with brown and white heads. The first has the bill black above and yellow below; the second has the bill entirely black; and the third the bill yellowish.

The following Table will show the different species and their distinguishing features:—

A″. Rostro ad apicem compresso et acuto.
  a. Maxima, dorso olivascenti-brunneo.
    a′. Capite saturate violaceo . . . . . *M. virens.*
  b. Virides, capite versicolori.
    a′. Gutture cinerascenti-albo.
      a″. Fronte nitenti-sulphureâ . . . . . *M. chrysopsis.*
      b″. Fronte albescenti-brunneâ . . . . . *M. chrysopogon.*
    b′. Gutture coccineo.
      a″. Fronte aurantiacâ . . . . . *M. mystacophonos.*
      b″. Fronte pallide sulphureâ . . . . . *M. javensis.*
    c′. Gutture viridi, occipite coccineo . . . . . *M. humei.*
    d′. Gutture lætè cæruleo . . . . . *M. versicolor.*
    e′. Gutture brunneo . . . . . *M. corvina.*

f'. Gutture aurantiaco.
a''. Fronte coccineâ . . . . . *M. franklinii.*
b''. Fronte nigrâ . . . . . *M. faber.*
c''. Fronte viridescenti-sulphureâ.
a'''. Occipite cæruleo . . . . . *M. nuchalis.*
b'''. Occipite coccineo . . . . . *M. oorti.*
g'. Gutture viridi; occipite cæruleo . . . . . *M. armillaris.*
h'. Gutture cyaneo.
a''. Fronte rubrâ . . . . . *M. asiatica.*
b''. Fronte flavâ.
a'''. Occipite viridi . . . . . *M. flavifrons.*
b'''. Occipite cæruleo . . . . . *M. henricii.*
c''. Fronte cæruleâ . . . . . *M. australis.*
d''. Fronte nigrâ.
a'''. Regione paroticâ coccineâ . . . . . *M. duvaucelii.*
b'''. Regione paroticâ cyaneâ . . . . . *M. cyanotis.*
i'. Crisso rubro . . . . . *M. legrandieri.*
c. Virides, capite brunneo vel albo striato.
a'. Gutture albescente.
a''. Capite nuchâque lætè brunneis . . . . . *M. viridis.*
b''. Capite nuchâque striatis.
a'''. Major, pectore pallidè brunneo striato . . . . . *M. hodgsoni.*
b'''. Minor, pectore lætè brunneo striato . . . . . *M. lineata.*
b'. Gutture brunneo.
a''. Pectore ventreque brunneis . . . . . *M. inornata.*
b''. Pectore brunneo, albo striato; ventre viridi.
a'''. Major, capite albescenti-brunneo . . . . . *M. caniceps.*
b'''. Minor, capite læte brunneo . . . . . *M. zeylanica.*
c'. Gutture striato; superciliari viridi . . . . . *M. phæostriata.*

2. Genus Xantholæma.

Characteristics.—Bill shorter than head, stout, and blunt at tip; rictal bristles extending beyond the tip of the bill. All four species have the forehead red. The general colour of the plumage, which is soft and loose, is green. Wings moderate in length. Tail short. Legs and feet as in *Megalæma*. In food, and nidification also, they resemble the above-named genus.

The *Xantholæmæ* are spread over Continental India, Ceylon, Sumatra, Java, Cochin-china, and the Philippines—one species, *X. hæmacephala*, having a larger range than any other member of the *Capitonidæ*, if the opinion we have formed be right, namely, that the Philippine bird is identical with Latham's *Bucco indicus*.

Prince Bonaparte was the first to separate this genus from that of *Megalæma*—to which it is closely allied, so much so that we were at first doubtful whether we should adhere to his separation. As, however, it is a well-marked little group, the four species of which bear a strong family likeness to each other, and may be distinguished easily by their

short blunt bill and small squat bodies from *M. australis* and *M. duvaucelii* (then earest allied species of *Megalæma*), we have thought it preferable to follow Bonaparte, and retain the genus.

B″. Rostro brevi, lato et obtuso.
  a. Subtèr striata.
    a′. Gutture sulphureo . . . . . *X. hæmacephala.*
    b′. Gutture coccineo . . . . . *X. rosea.*
  b. Subtèr haud striata.
    a′. Gutture aurantiaco . . . . . *X. rubricapilla.*
    b′. Gutture rubro, aurantiaco marginato . . . . . *X. malabarica.*

3. Genus Xylobucco.

Characteristics.—Rictal bristles black, strongly developed; culmen acute and defined and nearly straight; the gonys curves very much upwards towards the tip, which gives the appearance of the bill being upside down. Nostrils round and basal. Plumage very soft and loose. Wings of moderate length; third, fourth, and fifth quills subequal and longest. Tail very short. Tarsus longer than exterior front toe with its claw; inner hind toe very minute.

This genus is very closely allied to *Megalæma* and *Barbatula*; from the former we have separated it on account of its acute culmen, and from the latter, which it much resembles, by its straight culmen and very curved gonys. There are only two species as yet known, one of which (*X. duchaillui*) was the type of *Buccanodon*. We could not find the smallest generic difference between it and *X. scolopaceus*; and as no reason was given by the proposer of the genus, we have been unable to separate them, and therefore have placed them together under the oldest generic head. They are both found in Africa; Duchaillu, the discoverer of the one named after him, gives the following interesting note on the nidification of this genus:—

"These singular little birds make their nests with great pains in the wood of dead trees. The male and female settle upon a tree which seems to have been dead a sufficient time to soften the wood a little, and then, going to work with their little bills, peck out a circular opening two inches in diameter, and perhaps two inches deep. This done, they dig perpendicularly down for about four inches. The cavity thus made is their nest. Of course, as they are small birds, it takes them a long time to perform this piece of carpentering—often two or three weeks. Then it is lined softly, and the female lays her eggs and hatches them in security."

A″. Mandibulâ valde curvatâ ad apicem.
  a. Major, suprà niger flavipunctatus . . . . . *X. duchaillui.*
  b. Minor, suprà terricolor flavipunctatus . . . . . *X. scolopaceus.*

4. Genus Barbatula.

Characteristics.—Rictal bristles black, strongly developed; culmen acute; both mandibles evenly sloped towards the tip. Plumage, which is soft and loose, black, marked with yellow. Wings moderate; quills exteriorly edged with yellow. Tail very short. Tarsus rather longer than the exterior front toe with claw; inner hind toe very small. They feed on berries, insects, or larvæ; they run up and down the trees, like the Piculets, in search of insects in the crevices of the bark. They occasionally sit upon the top branches of the highest trees uttering their ringing note for hours together; they nestle in holes in trees, and lay six white eggs.

There are eight species in this genus; all inhabit Africa; and all are small, except *B. leucotis*, which is as large as a *Gymnobucco*, to which it is distinctly allied, but not so closely as it is to *Barbatula*; after careful examination of the specimen we obtained from the Leiden Museum, we have considered it best to classify it with this genus, as the bill is no doubt an exaggerated *Barbatula* bill, the peculiarity of the bristles of *Gymnobucco* precludes our adding it to that genus.

B″. Maxillâ mandibulâque æqualiter curvatis.
- *a*. Suprà nigra, albo vel flavo striata.
  - *a′*. Capite summo rubro . . . . . *B. pusilla.*
  - *b′*. Capite summo aurantiaco . . . . . *B. chrysocoma.*
  - *c′*. Occipite rubro; uropygio aurantiaco . . . . . *B. uropygialis.*
- *b*. Suprà nitente nigra.
  - *a′*. Uropygio rubro . . . . . *B. atroflava.*
  - *b′*. Uropygio aurantiaco.
    - *a″*. Major, alaribus sulphureo marginatis . . . . . *B. bilineata.*
    - *b″*. Minor, alaribus aurantiaco marginatis . . . . . *B. subsulphurea.*
  - *c′*. Minor, uropygio sulphureo . . . . . *B. leucolæma.*
- *c*. Maxima, suprà brunnea, pectore nigro . . . . . *B. leucotis.*

5. Genus Psilopogon.

Characteristics.—Bill with margin smooth; a thick bunch of bristles behind each nostril, which are scarlet, with the basal half black; a band of black across the centre of the bill. General plumage green. The tail is longer in proportion than in any other genus of this subfamily.

There is only one known species, which was discovered by Muller, one of the scientific travellers of the Leiden Museum. The distinguishing feature is the bristles, which are in two bunches, and differ in form and colouring from those of all the other *Megalæminæ*.

It is found in the dense forests of Sumatra, and, being very locally distributed, has been seldom procured.

C′. Setis densis post nares coccineo latè marginatis.
- *a*. Viridis, fronte nigrâ, occipite brunneo . . . . . *P. pyrolophus.*

6. Genus Gymnobucco.

Characteristics.—Bill with margin smooth; both mandibles curved in the same degree; culmen acute and inflated at base, but much compressed towards the tip; a bunch of stubby yellowish brown bristles over each nostril, one at each side of the base of the lower mandible, and a small one on the chin. Head more or less bare. Wings longer than in *Megalæma* in proportion to its size. Tail rather short. Plumage brown, washed with olive-yellow. The exterior front toe, with the claw, is longer than the tarsus, inner hind toe moderate.

This genus was first separated by Bonaparte. There are two species, both from Western Africa, one with the head bare, and one with the head feathered, but both very similar in colour, and having the same peculiar bristles. The females, strange to say, want the bristles over the nostrils; and in the other places they are feebly developed. According to Verreaux, they feed on insects and their larvæ, and migrate during the winter.

There is a third species recorded, *G. peli*; but after a careful comparison of the type with *G. calvus*, we came to the conclusion that they were not specifically different. The former name, therefore, sinks into a synonym.

D′. Capite calvo; vel summo plumato; setis densis post nares flavescenti-brunneis.
- *a.* Capite calvo . . . . . *G. calvus.*
- *b.* Capite summo plumato . . . . . *G. bonapartei.*

C. Capitoninæ.

This third and last subfamily, according to our classification, has representatives in all three continents. Their distinctive characters are:—the smooth bill, which separates them from the *Pogonorhynchinæ*; the rictal bristles (which are few and short, or entirely wanting) and the form of the bill (which has a curved tip slightly extending beyond the tip of the mandible): the latter features distinguish them from the *Megalæminæ*. The bill is somewhat shorter than the head, rather broader than high at the base; the culmen is raised between the nostrils and compressed towards the tip; nostrils rounded, basal. Wings rounded and of moderate length. (This differs in some of the *genera*, as also does the length of the tail.) The tarsus is of the same length as the exterior front toe.

We propose to divide them into the following genera:—

C. Rostro lævi, setis rictalibus minimis vel deficientibus, et maxillâ incurvâ apice ultra mandibulam protenso.
- A′. Caudâ longâ; culmine orbiculato . . . . . *Trachyphonus.*
- B′. Caudâ brevi.
  - A″. Culmine simo . . . . . *Capito.*
  - B″. Culmine acuto compresso . . . . . *Caloramphus.*
  - C″. Culmine acuto inflato . . . . . *Stactolæma.*

1. Genus Capito.

Characteristics.—Bill compressed, inflated at the base; gonys slightly raised towards the tip; culmen flat; rictal bristles few and feeble; nostrils rounded and basal. Wings rounded and moderate in length; fourth and fifth quills longest. Tail about one-third less than the wing in length. Legs and feet similar in structure to the other subfamilies'. Tarsus about the same length as the exterior front toe. According to Mr. Sclater, the Barbets occupy but a limited area in South America, compared with many other of its peculiar families. Not one of them has yet been found to the north of the Isthmus of Panama, or south of the basin of the Amazon; and the species are chiefly confined to the countries traversed by the upper branches of this river and to the mountain-valleys of New Granada, Ecuador, and Peru*. We have few details recorded concerning their habits; but they are said to be seen generally in the fruit-trees, feeding on the fruit and hopping from branch to branch like the Toucans.

Mr. Bartlett, who had great opportunities of noticing the habits of this genus, says that they perch on the tree-tops, and bow the head and raise the tail as they utter their call. He considers that their movements greatly resemble those of the *Ramphastidæ*.

All the species of this genus have this peculiarity, which exists in no other, namely that the sexes differ in a most wonderful manner: for many years the small green ones were all considered good species, until Mr. Salvin discovered that they were only females of the red-headed ones.

A''. Caudâ brevi; culmine simo.
- *a*. Majores, rostro plumbeo.
  - *a'*. Suprà niger immaculatus . . . . . *C. maculicoronatus.*
  - *b'*. Suprà aurovirens . . . . . *C. aurovirens.*
  - *c'*. Suprà niger flavo variegati.
    - *a''*. Gutture rubro, fronte rubrâ . . . . . *C. niger.*
    - *b''*. Gutture aurantiaco, fronte viridescenti-sulphureâ . . . *C. auratus.*
    - *c''*. Gutture albo, fronte nigrâ . . . . . *C. quinticolor.*
- *b*. Minores, rostro flavescente, suprà virides.
  - *a'*. Pileo coccineo.
    - *a''*. Mystacibus coccineis . . . . . *C. bourcieri.*
    - *b''*. Mystacibus flavis . . . . . *C. glaucogularis.*
    - *c''*. Mystacibus glauco-cæruleis . . . . . *C. versicolor.*
  - *b'*. Pileo saturatè sanguineo.
    - *a''*. Vittâ cervicali posticâ cinerascenti-cæruleâ . . . . . *C. richardsoni.*
    - *b''*. Vittâ cervicali posticâ clarè flavicanti-viridi . . . . . *C. aurantiicollis.*

2. Genus Trachyphonus.

Characteristics.—Bill compressed towards the tip, and inflated at the base, of a greenish yellow colour; culmen rounded and elevated above the nostrils, which are rounded and basal; the upper mandible is curved towards the tip, and slightly overhangs the lower one.

* Since Mr. Sclater wrote the above in 1861, two species have been discovered north of the Isthmus.

The rictal bristles are almost entirely wanting. The plumage is very soft and loose, the wings are short and very rounded, the fifth and sixth quills being the longest; the tail is long and graduated, being about the same length as the wing. The legs and feet are the same as in the rest of the family; the claws are short. They come entirely from Africa, and are found in the west, north-east, and central countries of that continent. We have classified them into two subgenera, taking as a distinctive point the occipital crest, which is wanting in *T. purpuratus* and *T. goffini*. These two species differ so much in the bill from *T. margaritatus* and *T. squamiceps* that we should have been inclined to separate them generically, had it not been for *T. cafer*, which is a decided link between the two sections, having the crest of the latter and the bill of the former; and further, in some specimens, the bill also assumes the longer, narrower form of *T. margaritatus*.

There can be no doubt that the species of this genus are able to and do climb both up and down trees; for Mr. J. Keast Lord, a well known observer of nature, when showing us a specimen of *T. margaritatus* he had obtained in North Africa, said that he shot the bird climbing up the trunk of one of the giant cactus trees, and thought it was a Woodpecker until he got the bird in his hand. Governor Ussher, in writing from Fantee to Mr. R. B. Sharpe, remarks, about *T. goffini*, that he found them running up and down the trunks of the palm trees; and from his observations they much resembled the *Picidæ* in their habits. They feed principally on insects and their larvæ, which they find in the crevices of the bark on the trunks of the trees, and also on fruits and berries. They have a loud ringing note, apparently similar to that of the other genera. They build generally in holes in trees. An instance is recorded by Heuglin of a nest of *T. margaritatus* being found in a bank; but this appears to be of rare occurrence. Their flight is undulating and rapid; and they are generally found in the forests.

We divide them as follows:—

A′. Caudâ longâ; culmine orbiculato.
  a. Occipite cristato.
    a′. Suprà niger albo variegatus . . . . . *T. cafer*.
    b′. Suprà terricolor albo punctati.
      a″. Subtèr haud squamatus . . . . . *T. margaritatus*.
      b″. Subtèr squamatus . . . . . *T. squamiceps*.
  b. Occipite haud cristato.
    a′. Hypochondriis sulphureis immaculatis . . . . . *T. goffini*.
    b′. Hypochondriis nigris sulphureo punctatis. . . . . *T. purpuratus*.

3. Genus Caloramphus.

Characteristics.—Rictal bristles entirely wanting, bill nearly as long as the head, and very much compressed, the culmen is acute and well defined; the mandibles do not bulge out at the base; the culmen slopes towards the tip, which overhangs the lower mandible; the gonys ascends very slightly; the nostrils are rounded; the feathers of the head are stiff-shafted, and extend into short bristles beyond the webs; the upper plumage is entirely

dark earthy brown. The wings are of moderate length, the third, fourth, fifth and sixth quills being subequal and longest; tail medium length and rounded at the sides; tarsus short; feet as in the other genera.

There are only two species belonging to this strange genus, which differs greatly in personal appearance from any other of the family, and, as Mr. Blyth justly remarks, closely resembles the smaller members of the *Ramphastidæ* group.

They are small dingy birds. The bill when seen in profile looks huge in comparison with the size of the bird; but when seen from above, it is not broader than that of a *Sylvia*. Some authors consider that the difference is only sexual, and that both come from Sumatra (as is the opinion of Mons. Jules Verreaux). Mr. A. R. Wallace, the latest scientific ornithologist who has visited Borneo and Sumatra, and obtained both species, has no hesitation in saying, from his own experience, that the red-breasted bird is Bornean, and the yellow-breasted Sumatran. This evidence is sufficient to warrant a separation.

B″. Culmine acuto compresso.
  a. Pectore rubro . . . . . *C. fuliginosus.*
  b. Pectore flavescente . . . . . *C. lathami.*

4. Genus Stactolæma.

Characteristics.—Rictal bristles almost entirely wanting; bill a little shorter than the head, culmen acute, but inflated, and sloping towards the tip, which slightly overhangs the lower mandible; the gonys ascends somewhat towards the tip; the nostrils are basal and rounded; the wings and tail moderate in length; legs and feet as in other genera. General plumage rufescent brown, with a yellow head and throat. We proposed this genus for a species sent from Africa by Anchieta, which we could not identify with any known genus. Nothing is known of its habits.

C″. Culmine acuto inflato.
  a. Brunneo-rufescens, capite guttureque sulphureis . . . . *S. anchietæ.*

CONSPECTUS AVIUM CAPITONIDARUM.

A. Rostro dentato . . . . . *Pogonorhynchinæ.*
  A′. Mandibulæ apice bifurcato . . . . . *Tetragonops.*
    a. Gutture cineraceo . . . . . *T. ramphastinus.*
    b. Gutture olivaceo . . . . . *T. frantzii.*
  B′. Maxillâ dentatâ.
    A″. Pectore setis nigris ornato . . . . . *Tricholæma.*
      a. Suprà nigrâ flavipunctatâ . . . . . *T. hirsuta.*
    B″. Pectore setis haud ornato . . . . . *Pogonorhynchus.*
      a. Majores, rostro flavicante, valdè dentato.
        a′. Gutture coccineo; pectore nigro . . . . . *P. dubius.*
        b′. Gutture pectoreque nigris . . . . . *P. rolletti.*

c'. Gutture pectoreque coccineis . . . . . *P. bidentatus.*
d'. Fronte rubrâ, pectore brunneo . . . . . *P. melanopterus.*
b. Minores, rostro nigro.
a'. Capite toto albo . . . . . *P. leucocephalus.*
b'. Capite guttureque coccineis.
a''. Suprà niger . . . . . *P. abyssinicus.*
b''. Suprà terricolor sulphureo lavatus . . . . . *P. torquatus.*
c'. Pectore albescente, coccineo maculato . . . . . *P. vieilloti.*
d'. Fronte rubrâ; occipite nigro.
a''. Gutture nigro.
a'''. Mystacibus albis; pectore medio nigro . . . . . *P. leucomelas.*
b'''. Mystacibus nigris; pectore medio albo . . . . . *P. undatus.*
b''. Gutture albo . . . . . *P. diadematus.*
e'. Capite guttureque nigris . . . . . *P. melanocephalus.*
B. Rostro lævi; setis rictalibus longis, vel post nares densis; maxillæ mandibulæque apicibus æquis . . . . . *Megalæminæ.*
A'. Culmine lato et orbiculato ad basin; setis rictalibus nigris.
A''. Rostro ad apicem acuto et compresso . . . . . *Megalæma.*
a. Maxima, dorso olivascenti-brunneo.
a'. Capite toto saturatè violaceo . . . . . *M. virens.*
b. Virides, capite versicolori.
a'. Gutture cinerascenti-albo.
a''. Fronte sulphureâ . . . . . *M. chrysopsis.*
b''. Fronte albescenti-brunneâ . . . . . *M. chrysopogon.*
b'. Gutture coccineo.
a''. Fronte aurantiacâ . . . . . *M. mystacophonos.*
b''. Fronte pallidè nitenti-sulphureâ . . . . . *M. javensis.*
c'. Gutture viridi; occipite coccineo . . . . . *M. humei.*
d'. Gutture lætè cæruleo . . . . . *M. versicolor.*
e'. Gutture brunneo . . . . . *M. corvina.*
f'. Gutture aurantiaco.
a''. Fronte coccineâ . . . . . *M. franklinii.*
b''. Fronte nigrâ . . . . . *M. faber.*
c''. Fronte viridescenti-sulphureâ.
a'''. Occipite cæruleo . . . . . *M. nuchalis.*
b'''. Occipite coccineâ . . . . . *M. oorti.*
g'. Gutture viridi; occipite cæruleo . . . . . *M. armillaris.*
h'. Gutture pallidè cyaneo.
a''. Fronte rubrâ . . . . . *M. asiatica.*
b''. Fronte flavâ.
a'''. Occipite viridi . . . . . *M. flavifrons.*
b'''. Occipite cæruleo . . . . . *M. henricii.*
c''. Fronte cæruleâ . . . . . *M. australis.*
d''. Fronte nigrâ.
a'''. Regione paroticâ rubrâ . . . . . *M. duvaucelii.*
b'''. Regione paroticâ cæruleâ . . . . . *M. cyanotis.*

c'. Crisso rubro . . . . . *M. legrandieri.*
c. Virides, capite brunneo vel albo striato.
a'. Gutture albescente.
a''. Capite nuchâque lætè brunneis . . . . . *M. viridis.*
b''. Capite nuchâque striatis.
a'''. Major, pectore pallidè brunneo striato . . . . . *M. hodgsoni.*
b'''. Minor, pectore lætè brunneo striato . . . . . *M. lineata.*
b'. Gutture brunneo.
a''. Pectore ventreque brunneis . . . . . *M. inornata.*
b''. Pectore brunneo, albo striato; ventre viridi.
a'''. Major, capite albescenti-brunneo . . . . . *M. caniceps.*
b'''. Minor, capite lætè brunneo . . . . . *M. zeylonica.*
c'. Gutture striato; superciliari viridi . . . . . *M. phœostriata.*
B''. Rostro brevi, lato et obtuso . . . . . *Xantholæma.*
a. Fronte coccineâ, subtèr striatâ.
a'. Gutture sulphureo . . . . . *X. hæmacephala.*
b'. Gutture coccineo . . . . . *X. rosea.*
b. Fronte coccineâ, subtèr haud striatâ.
a'. Gutture aurantiaco . . . . . *X. rubricapilla.*
b'. Gutture rubro, aurantiaco marginato . . . . . *X. malabarica.*
B'. Culmine acuto; setis rictalibus nigris.
A''. Maxillâ rectâ, mandibulâ valde curvatâ ad apicem . . . . *Xylobucco.*
a. Major, suprà niger flavipunctatus . . . . . *X. duchaillui.*
b. Minor, suprà terricolor flavipunctatus . . . . . *X. scolopaceus.*
B''. Maxillâ mandibulâque æqualiter curvatis . . . . . *Barbatula.*
a. Suprà nigra, albo vel flavo striata.
a'. Capite summo rubro . . . . . *B. pusilla.*
b'. Capite summo aurantiaco . . . . . *B. chrysocoma.*
c'. Occipite rubro; uropygio aurantiaco . . . . . *B. uropygialis.*
b. Suprà nitente nigra immaculata.
a'. Uropygio rubro . . . . . *B. atroflava.*
b'. Uropygio aurantiaco.
a''. Major, alaribus sulphureo marginatis . . . . . *B. bilineata.*
b''. Minor, alaribus aurantiaco marginatis . . . . . *B. subsulphurea.*
c'. Minor, uropygio sulphureo . . . . . *B. leucolæma.*
c. Maxima, suprà brunnea, pectore nigro . . . . . *B. leucotis.*
C'. Setis densis post nares coccineo latè marginatis . . . . . *Psilopogon.*
a. Viridis, fronte nigrâ, occipite brunneo . . . . . *P. pyrolophus.*
D'. Setis densis post nares flavescenti-brunneis . . . . . *Gymnobucco.*
a. Capite calvo . . . . . *G. calvus.*
b. Capite summo plumato . . . . . *G. bonapartei.*
C. Rostro lævi, setis rictalibus minimis vel deficientibus, maxillâ incurvâ apice ultra mandibulam protenso . . . . . *Capitoninæ.*
A'. Caudâ longâ; culmine orbiculato . . . . . *Trachyphonus.*
a. Occipite cristato.
a'. Suprà niger albo variegatus . . . . . *T. cafer.*

b'. Suprà terricolor albo punctati.
a''. Major, subtèr immaculatus . . . . . *T. margaritatus.*
b''. Minor, subtèr squamatus . . . . . *T. squamiceps.*
b. Occipite haud cristato.
a'. Hypochondriis sulphureis immaculatis . . . . . *T. goffini.*
b'. Hypochondriis nigris sulphureo punctatis . . . . . *T. purpuratus.*
B'. Caudâ brevi.
A''. Culmine simo . . . . . *Capito.*
a. Majores, rostro plumbeo.
a'. Suprà niger immaculatus . . . . . *C. maculicoronatus.*
b'. Suprà aurovirens . . . . . *C. aurovirens.*
c'. Suprà niger sulphureo variegati.
a''. Gutture et fronte rubris . . . . . *C. niger.*
b''. Gutture aurantiaco . . . . . *C. auratus.*
d''. Gutture albo, fronte nigrâ . . . . . *C. quinticolor.*
b. Minores, rostro flavescente.
a'. Capite coccineo.
a''. Mystacibus coccineis . . . . . *C. bourcieri.*
b''. Mystacibus flavis . . . . . *C. glaucogularis.*
c''. Mystacibus glaucocæruleis . . . . . *C. versicolor.*
b'. Capite saturatè sanguineo.
a''. Vittâ cervicali posticâ cinerascenti-cæruleâ . . . . . *C. richardsoni.*
b''. Vittâ cervicali posticâ clarè flavicanti-viridi . . . . *C. aurantiicollis.*
B''. Culmine acuto, valdè compresso . . . . . *Caloramphus.*
a. Suprà lætè terricolor.
a'. Pectore rubro maculato . . . . . *C. fuliginosus.*
b'. Pectore flavescenti-albo . . . . . *C. lathami.*
C''. Culmine acuto inflato . . . . . *Stactolæma.*
a. Brunneo-rufescens, capite guttureque sulphureis . . . . . *S. anchietæ.*

SYNONYMY OF GENERA OF THE CAPITONIDÆ.

I. Pogonorhynchus, *Van der Hoev.* . . . (1835) Handb. ii. p. 461.
Pogonias, Illiger . . . . . (1811) Prod. Mam. p. 202.
Pogonius, Leach . . . . . (1815) Zool. Misc.
Pogonia, Vieillot . . . . . (1816) Anal. d'Orn.
Laimodon, G. R. Gray . . . . . (1841) Gen. of B. p. 69.
Pogonoramphus, Des Murs . . . . . (1851) Hist. Nat. ii. p. 14.
II. Tricholæma, *Verreaux* . . . . . (1855) Cab. Journ. p. 102.
III. Tetragonops, *Jardine* . . . . . (1855) Edin. Phil. Journ. p. 404.
IV. Megalæma, *Agassiz.*
Bucco, Illiger . . . . . (1811) Prod. Av. p. 204.
Barbions, Lesson . . . . . (1831) Tr. d'Orn. p. 164.

	Megalaima, G. R. Gray	(1842) List of B. App. p. 12.
	Chotorea, Bonaparte	(1854) Ann. des Sci. Nat. p. 130.
	Cyanops, Bonaparte	(1854) Ann. des Sci. Nat. p. 130.
V.	Xantholæma, *Bonaparte*	(1854) Ann. des Sci. Nat. p. 130.
VI.	Xylobucco, *Bonaparte*	(1850) Consp. Av. i. p. 141.
VII.	Barbatula, *Lesson*	(1837) Comp. Buff. ix. p. 292.
VIII.	Psilopogon, *Muller*	(1835) Tijd. Nat. Gesch. ii. p. 339.
	Pseudobucco, Des Murs	(1851) Hist. Nat. ii. p. 24.
	Buccotrogon, V. Kreling	(1852) Jahr. p. 20.
IX.	Gymnobucco, *Bonaparte*	(1850) Consp. Av. p. 141.
	Gymnocranus, Heine	(1860) Cab. Journ. p. 191.
X.	Capito, *Vieillot*	(1816) Anal. d'Orn. p. 27.
	Nystactes, Gloger	(1827) Observ. sur les noms d'Ois.
	Micropogon, Tem.	(1830) Pl. Col. texte.
	Eubucco, Bonap.	(1850) Consp. Av. p. 142.
XI.	Trachyphonus, *Ranz.*	(1823) Elem. di Orn. p. 157.
	Cucupicus, Lesson	(1828) Man. d'Orn. ii. p. 116.
	Polysticte, Smith	(1835) S. Afr. Journ.
XII.	Caloramphus, *Lesson*	(1839) Rev. Zool. p. 139.
	Megalorhynchus, Eyton	(1839) P. Z. S. p. 106.
	Psilopus, Temm.	
XIII.	Stactolæma, *C. & G. Marshall*	(1870) P. Z. S. p. 70.

GEOGRAPHICAL DISTRIBUTION.

An apology is scarcely needed for entering at some length on this point in a history of a complete family of birds scattered over the face of the earth. Whatever view may be taken of the origin of species, their present geographical distribution must form one of the most interesting points to the ornithologist; for it offers a tangible channel through which he may apply the results of his researches to the solution of the general problems of natural science; and on this point, at least, he is working hand in hand with the students of its other branches, and with them contributing to the accumulation of data and of valuable evidence for determining the past history of the earth. Its facts are incontrovertible, and they afford a sensible relief to the mind after the maze in which the other branches of ornithology are involved; and from their investigation a new and additional value to the science is derived.

The Capitonidæ inhabit the tropical regions of the three great continents Asia, Africa, and America, or, technically speaking, the regions called respectively the Indo-Malayan, the Ethiopic, and the Neo-tropical. In the first they extend to about twelve degrees north of the tropic of Cancer into the Himalayan range; in the second they are found to about

ten degrees south of the tropic of Capricorn in the Cape colony and Kaffraria; whilst in the third region they are strictly confined to the tropics*. In Europe and Australia they are unknown. These three great continents, now separated from each other by wide expanses of ocean, as well as by the equally impassable burning deserts and eternal Arctic snows, will for the sake of convenience be considered separately. With the single and perplexing exception of the occurrence of the genus *Caloramphus*, belonging to the American form, in the Malayan archipelago, the grouping of the birds accords well with these great physical boundaries. Each region possesses its own peculiar type or types; there is no genus common to any two of them; and all the characteristics of the three divisions lead to the conclusion that a very long period indeed has elapsed since intercommunication was cut off, if the supposition be correct that they are all derived from a single source.

I. The Asiatic or Indo-Malayan region, as inhabited by the Barbets, is bounded to the south by the Indian Ocean, to the east by the Pacific Ocean, to the west by the deserts of Beloochistan and Afghanistan, and to the north by the great central chain of mountains which separates India from Thibet, and China from Mongolia. It contains, as far as we at present know, four genera, one of which is divided into four subgenera and thirty-four species. It may conveniently be divided into four subregions, the limits of which would be as follows:—

1. Ceylon.—A small island, but one showing peculiar isolation in its forms, and possessing a local fauna which renders it well worthy of separate rank as a subregion. Two genera and one subgenus are represented in it; and out of the four species found there, three are peculiar to the island; of these three one (*M. flavifrons*) stands quite alone, the other two are represented by closely allied species on the neighbouring continent.

2. India.—This subregion includes the whole peninsula up to the foot of the Himalayas, is bounded at the north-east corner by Assam, and is itself the most westerly limit of the group. The same genera and subgenus found in Ceylon are also to be found here; but, with one exception, the species are different: they are also more numerous—six species inhabiting this district, of which two only extend into the next subregion.

3. The Himalayas.—This includes the whole Himalayan range, Assam, Burmah, and China, as far as the Himalayan type of fauna obtains; it forms the northern limit of the group. It contains examples of two genera and two subgenera, in all five species: of these, three species are peculiar to this district, including one entire subgenus; one extends only a short way into Northern India; and the fifth is *X. hæmacephala*, the ubiquitous species of the group, found throughout its whole range.

4. Malayana.—This division is by far the richest, both in genera and species, and seems to be the headquarters of the family. It includes all the countries south of Burmah and China, the Malayan peninsula, and the islands of the Archipelago, as far as the straits of Macassar, beyond which the Barbets do not seem to have spread. It contains representatives of all four genera, and of two out of the four subgenera: two genera and one subgenus are peculiar to it; and this subgenus is by far the largest. Of the twenty-two species

* *C. peruvianus* is quoted from Valparaiso by Vigors; but the authority is doubtful.

found there, only one is found in any of the other subregions; and of that one the Malayan varieties have frequently been classed as separate species.

To sum up, of the genera one is peculiar to Sumatra only, another to the Malayan archipelago, the remaining two are spread throughout the entire region. Of the four subgenera of *Megalæma*, one is spread throughout the four divisions, one is peculiar to the Himalayas, another to the Malayan region, and the fourth is found in all the subregions, except the Malayan. All further details will be seen from the accompanying tabular statement:—

Distribution of the Capitonidæ in the Asiatic Region.

		Ceylon.	India.			Himalayas.					Malayana.										
		Ceylon.	Southern.	Central.	Northern.	W. Himalaya.	E. Himalaya.	Assam.	Burmah.	China.	Arrakan.	Tenasserim.	Siam.	Cochin China.	Malacca.	Sumatra.	Java.	Borneo.	Hainan.	Formosa.	Philippines
	M. virens	...	...	...	...	*	*	...	...	*											
Megalema.	M. zeylanica	*																			
	caniceps	...	*	*	*																
	viridis	...	*																		
	inornata	...	...	*																	
	hodgsoni	...	...	...	...	*	*	*													
	lineata	...	...	...	...	...	...	...	...	...	*	*	...	...	*	...	*				
	phæostriata	...	...	...	...	...	...	...	...	...	...	...	...	*							
Cyanops.	M. asiatica	...	...	...	*	*	*	*	*												
	franklinii	...	...	...	...	...	*	*													
	flavifrons	*																			
Chotorea.	M. versicolor	...	...	...	...	...	...	...	...	...	...	...	*	...	*	*	*?	*			
	chrysopogon	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*					
	chrysopsis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*			
	javensis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*				
	corvina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*				
	mystacophonus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*				
	nebulosa	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*	*				
	oorti	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*					
	henricii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*					
	armillaris	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*					
	nuchalis	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*					
	faber	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*				
	australis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*	
	duvaucelii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*		
	cyanotis	...	...	...	...	...	...	..	...	...	*?	...	...	...	*	*	*	*			
	legrandieri	...	...	...	...	...	...	...	...	...	*	*					...				
	P. pyrolophus	...	...	...	...	...	...	...	...	...	...	...	...	*							
Xantholema.	X. flavigula	*	*	*	*	*	*	*								*					
	rosea	...	...	...	...	...	...	...	...	...	...	*	*	*	*	*	...	...	...	...	*
	malabarica	...	*														*				
	rubricapilla	*																			
	C. lathami	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*					
	fuliginosus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*			

II. The African or Ethiopian region is inhabited throughout by the Barbets, and contains seven genera, one subgenus, and thirty species. Of the seven genera three have as yet only

been discovered in Western Africa. We have divided the region into three subregions, Eastern, Southern, and Western Africa. For convenience' sake, the division has been taken solely on the distribution of this particular family, and may possibly not hold good with others, or with the general physical aspect; the country is too little known at present to enable any inferences to be drawn on this point. The western division includes the coast as far south as Congo; the eastern division takes the coast-line as far south as Zanzibar; all below this is comprised in Southern Africa; and on the north they are bounded by the desert. The whole of the species found here are peculiar to this continent.

Distribution of the Capitonidæ in the African Region.

		West Africa.											South Africa.												East Africa.					
		Senegambia.	Sierra Leone.	Liberia.	Gold Coast.	Ashantee.	Fantee.	Dahomy.	Calabar.	Biafra.	Gaboon.	Loango.	Congo.	Angola.	Benguela.	Damaraland.	Namaqua.	Cape Colony.	Kaffraria.	Orange River.	Natal.	Sulu.	Transvaal.	Sofala.	Tette.	Mozambique.	Madagascar.	Zanzibar.	Somali.	Abyssinia.	Nubia.	Kordofan.
Pogonorhynchinæ.	P. dubius	*																													
	rolletti																													*	
	bidentatus						*																								
	leucocephalus																													*	
	torquatus																	*			*				*						
	abyssinicus																												*		
	leucomelas														*	*	*	*	*												
	melanocephalus																												*		
	vieilloti	*			*	*	*																								
	undatus																												*		
	melanopterus																									*					
	diadematus																													*	
	T. hirsuta				*	*	*				*																				
Megalæminæ.	G. calvus					*	*																								
	bonapartei										*																				
	B. pusilla																*		*										*		
	chrysocoma						*																								
	atroflava				*		*																								
	bilineata																		*												
	uropygialis																												*		
	subsulphurea						*																								
	leucolæma						*																								
	X. scolopaceus						*																								
	duchaillui										*																				
Capitoninæ.	T. cafer													*			*	*	*		*		*		*						
	margaritatus																												*	*	*
	squamiceps																													*	
	purpuratus										*																				
	goffini				*		*																								
	S. anchiætæ																														

III. The distribution of the American species will be sufficiently seen from the accompanying Table, and requires no comment. In this region, only two genera are found, both of which seem to be spread over the entire limits.

Distribution of the Capitonidæ in America.

		Central America.						South America.																	
		Volc. di Chiquiri.	Guatemala.	Honduras.	Nicaragua.	Costa Rica.	Panama.	Venezuela.	New Granada.	Bogota.	Ecuador.	Nanegal.	Esmeraldas.	Pallatanga.	Rio Napo.	Upper Amazon.	Nauta.	Lower Amazon.	Rio Negro.	Peru.	Rio Javarri.	Rio Ucayali.	Bolivia.	British Guiana.	Cayenne.
Capito.	C. niger	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*	...	...	...	...	...
	auratus	...	...	...	...	...	...	...	...	...	*	...	...	...	*	*	*	...	...	*	...	*	...	...	...
	amazonicus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*	...	...	...	...
	aurovirens	...	...	...	...	...	...	...	...	...	*	...	...	...	*	...	*	...	...	*	...	*	...	...	...
	maculicoronatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	quinticolor	...	...	...	...	...	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	versicolor	...	...	...	...	...	...	...	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	boucieri	*	...	...	...	*	...	...	*	*	*	*	...	*	*	...	...	...	...	*	...	...	...	...	...
	richardsoni	...	...	...	...	...	...	...	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	aurantiicollis	...	...	...	...	...	...	...	...	...	...	...	...	...	*	*	...	...	...	...	...	...	...	...	...
	glaucogularis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetragonops.	T. ramphastinus	...	...	...	...	...	...	...	...	...	*	...	...	...	...	...	...	...	...	*	*	*	...	...	...
	frantzii	*	...	...	...	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TETRAGONOPS · RAMPHASTINUS.

TETRAGONOPS RHAMPHASTINUS.

(THE TOUCAN-LIKE BARBET.)

Tetragonops rhamphastinus	. . . .	(1855) Jardine; Edin. N. Philos. Journ. p. 404.
"	"	(1856) Jardine; Edin. N. Philos. Journ. pl. 4. p. 92.
"	"	(1861) Sclater; Ibis, p. 184, pl. 6.

T. capite nitenti-nigro: gutture cineraceo: vittâ pectorali coccineâ.

Hab. in regione Neotropicâ.

Entire top of the head, nape, and collar shining black; sides of the occiput and nape white; back olive-brown, with a yellow lustre; lower back and upper tail-coverts deep olive-yellow; wing-coverts and tail dark blue-grey; quills brown, exterior webs margined with dark olive-yellow; sides of the face and throat lavender-colour; a broad pectoral band rich red, abdomen rich olive-yellow washed down the centre with red; flanks and under tail-coverts olive-green; bill orange-yellow, with the apical half pale blue-black. Length 8″·3, wing 4″·0, tail 3″·25.

Hab. Quito (*Jameson*); Nanegal (*Fraser*).

This strange-looking Barbet is the type of the genus *Tetragonops*: there is only one other species, very different from it in colouring, *T. frantzii*. The first specimens were sent to England by Professor Jameson, from Quito, and others have since been obtained from Nanegal. It is a very rare bird, and nothing is known of its habits.

There are two good figures of it extant, besides the one in this book—one in 'The Ibis' (*l. c.*), and the other in 'The Edinburgh New Philosophical Journal' (*l. c.*).

Our Plate was taken from two specimens in the collection of Mr. Salvin.

Additional references.—*Tetragonops rhamphastinus*: Sclater (1859), Ibis, p. 463, foot-note; id. (1862), Ibis, p. 2; id. (1864), Ibis, pp. 371 & 372; Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 93; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 19.

TETRAGONOPS FRANTZII ♂ & ♀

TETRAGONOPS FRANTZII.

(COSTA-RICAN BARBET.)

Tetragonops frantzii . . . . . (1864) Sclater, Ibis, p. 371, pl. x.
" " . . . . . (1865) Frantzius, Ibis, p. 551 ; J. f. O. 1869, p. 363.
" " . . . . . (1868) Gray, Cat. Capit. Brit. Mus., p. 19.
" " . . . . . (1868) Lawr. Ann. Lyc. N.Y., p. .
Gallinita, of the natives of Turrialba, Costa-Rica *(Frantzius)*.

♂ T. sordidè olivaceus, capite aureo nitenti ; cristâ occipitali nigra : gutture toto saturatè ochraceo : pectore medio aureo : abdomine virescenti-olivaceo, maculâ ad utrinque latera pectoris clarè cinereâ.

♀ Mari similis, sed cristâ occipitali nigrâ nullâ.

Hab. In republicâ Costa-Ricensi.

Male. Head olive, inclining to orange on the fore part, with a very distinct golden lustre in some lights; the rest of the upper surface of the body greenish olive, more distinctly green upon the rump; quills brown, the inner web pale fulvous at the base, the primaries externally edged with olive brown, the secondaries with greenish olive like the back; space between the bill and the eye black; cheeks, ear-coverts, and the entire throat, deep ochre with a slight golden lustre; rest of the under surface of the body greenish olive, washed, especially on the breast, with golden yellow, the shafts of the feathers on the flanks rather distinct, sides of the upper part of the breast clear blue grey; tail dark greenish olive above, brown beneath; bill plumbeous, pale at the tip; legs and feet black. Total length 7·4 inches, wing 3·4, tail 2·3, tarsus 1·0.

Female. Similar to the male, but wants the black occipital crest, and has the grey patches on the sides of the breast less largely developed.

Hab. Costa Rica (*Frantzius*, *Carmiol*).

Tetragonops Frantzii is comparatively a new addition to Ornithological Science. It

was first described by Dr. Sclater in the "Ibis" for 1864 (*l.c.*), from specimens sent by Dr. von Frantzius from Costa Rica to the Smithsonian Institution, whence they were forwarded to England by Professor Baird. There is but one other species of *Tetragonops*, viz., *T. ramphastinus*, from which the present bird may be easily distinguished by its olivaceous colouring.

Dr. Sclater in his original description (*l.c.*) remarks as follows:—

"In general characters it is not so strongly marked, and is to some extent interme-
"diate between *Capito* and *Tetragonops*, although certainly to be placed in the latter genus.
"The bill is relatively as short as in *T. ramphastinus*, the keel between the nostrils is much
"elevated and brought to a sharper edge than in the latter, but outside the nostrils is
"bevilled off at once, instead of being extended into a broad flattened surface. The curious
"bifurcation of the lower mandible exists also in the new species."

Dr. von Frantzius, the discoverer of the bird, gives the following observations respecting it, in a letter to Professor Baird. "I have obtained the new *Tetragonops* at the "foot of Turrialba, near Birris or Cervantes. The bird is there called 'Gallinita,' because "its cry resembles that of a chicken. It lives socially in flocks and is said to be specially "abundant in June." In a later communication the same gentleman records its habitat as the heights of Irazú, at an elevation of from 5,000 to 6,000 feet. The localities where it has been met with are La Palma, Quebradhonda, and Cervantes.

The specimens from which the plate is drawn were lent to us out of his collection by Mr. Osbert Salvin. The figures are those of an adult male and female, and were obtained in Costa Rica by Carmiol.

TRICHOLÆMA HIRSUTA.

(THE HAIRY-BREASTED BARBET).

Pogonias hirsutus	(1823) Swains, Zool. Illust. ii., 72.
Pogonias hirsutus	(1850) Bonaparte, Consp. Avium, p. 145.
Tricholæma flavipunctata . . .	(1855) Verr. Cab. Journ. Ornith. iii, p. 103.
,, ,, ...	(1855) Verr. Rev. et Mag. de Zool. fig. 14 (Juv).
Tricholæma hirsutus	(1860) Verr. Cab. Journ. p.190.
Laimodon hirsutus	(1840) G. R. Gr, Gen. of Birds ii, p. 429.
Pogonias hirsutus	(1857) Hartl., Syst. Ornith., W. Africa, p. 172.
Pogonorhynchus hirsutus . . .	(1863) Goffin, Schleg., Mus. Pays Bas, Buccones, p. 11.
,, ,, ...	(1868) G. R. Gr, Cat. Brit. Mus., Capitonidæ, p. 5.
Pogonias hirsutus	(1869) R. B. Sharpe, Ibis, 1869, p. 386.

T. supra niger; dorso scapularibusque flavo-punctatis; gutture nigro, subtus flavescenti-sulphureo, nigro-punctato.

Juv. Pileo flavo-punctato, gutture albo nigro striato.

Description. Adult. Head, neck, throat and upper parts of the body deep black; a superciliary and a broad moustachial stripe, pure white; the back and shoulders covered with small round sulphur-yellow spots, paler in some specimens and the wing-coverts, secondaries, rump, and upper tail-coverts, margined with the same colour; the primaries and feathers of the tail are blackish brown. Under parts sulphur-yellow, the shafts of the breast feathers black, stiff, and elongated beyond the web (in some specimens more than an inch), giving that peculiar hairy appearance from which the bird derives its name. The feathers of the abdomen, vent and lower tail-coverts, each with a round black spot, tipped with yellow, and with a white bar across.

Young Bird. The spots on the upper plumage are bright citron yellow, and extend over the head; the black feathers of the throat are broadly margined with white, and the black drops on the abdomen are larger, paler and less distinct.

Bill dark leaden black, the gonys whitened in the immature bird. Irides red; legs and feet bluish black.

Hab. Guinea (*Swainson*), Gold Coast (*Pel*), Gaboon (*Verreaux*), Fantee and Ashantee (*Mus. R. B. Sharpe*), St. George d'Elmina (*Schlegel*).

The immature bird of this species has been described as distinct under the name of *T. flavipunctata* by Verreaux in the "Journal fur Ornitholigie" (III.), p. 103. The birds are found in many intermediate states of plumage, and the various characters are more indicative of nonage than sexual difference of plumage. Goffin describes a female of this species killed by Heer Pel in Guinea as having the throat black, showing that the white markings are not characteristic of sex. A specimen in the British Museum, labelled *T. flavipunctata* (*Verreaux*), has the upper plumage suffused with brown, besides showing the characteristic differences given above in the description of the immature bird. Both the specimens in the Leiden Museum, with the white markings on the throat were killed at St. George d'Elmina, one in spring, the other in summer.

The figures in the plate show an adult and an immature bird, both from Mr. R. B. Sharpe's Museum; they are from Fantee.

The peculiar appearance of the breast, caused by the long hair-like bristles, distinguishes this bird at a glance. Verreaux gives the following account of its habits, which closely resemble those of its numerous congeners. "It is found in the great forests in the interior of Gaboon, where it lives in pairs; it feeds on insects, which it seeks among the branches and crevices of the bark. It is neither gregarious nor migratory, and is not a particularly shy bird; it breeds in holes in trunks of trees not far from villages.

J. G. Keulemans del. & lith.

P.W.M. Trap, Leiden exc.

POGONORHYNCHUS DUBUIS.

POGONORYNCHUS DUBIUS.

(THE GROVE-BILLED BARBET.)

Le Barbican des cotes de Barbarie	(c. 1780) Buff. Pl. Enl. 602.
Doubtful Barbet	(1782) Lath. Syn. I, pt. 2, p. 506.
Bucco dubius	(1788) Gm. Syst. Nat. I, p. 109.
Pogonias dubius	(1811) Illig. Prod. Mamm. et Av. p. 202.
Pogonorynchus dubius	(1835) Van der Hoev. Handb. II, p. 461.
Laimodon dubius	(1841) Gray, List of Gen. of B. p. 69.
Pogonias dubius	(1854) Bonap. Consp. Vol. Zyg. p. 12.
Pogonias sulcirostris	(1815) Leach, Zool. Misc. pl. 76.
Pogonia erythromelas	(1816) Vieill. Nouv. Dict. III, p. 236.
Pogonias major	(1817) Cuv. Regne Anim. I, p. 428.
Le barbican	(1806) Le Vaill. Barbus, pl. 18.

P. sexibus simillibus: suprà niger: dorso imo albo: gutture coccineo: pectore nigro: mandibula valde sulcata setis rictalibus fortissimis.

Hab. in Africâ occidentali.

Above deep blue-black; lores tipped with crimson; wing-coverts also sparsely margined with crimson; quills brown, pale yellow at the base of the inner web, secondaries washed with blue-black; middle of the back white; tail black, more glossy on the upper surface; cheeks, ear-coverts, and entire throat rich crimson; below the throat a broad pectoral band of deep blue-black; a patch of silky feathers on each side of the body yellowish white, with tiny spots of black; centre of the breast and abdomen crimson tinged with yellow; flanks and under tail-coverts deep blue-black; bill yellow, shading into red at the base, and white at the tip; orbital skin orange; legs and feet yellow tinged with rufous. Total length about 9 inches, wing from 4·25 to 4·5, tail 3·75, tarsus 1·0.

Additional references.—*Pogonias dubius*. Hartl. Orn. Westafr. p. 169 (1857), Verr. P. Z. S. 1859, p. 393, *Pogonorynchus dubius*, Goff. in Schl. Mus. Pays Bas, Buccones, p. I (1862). *Pogonias sulcirostris*, Swains. B. of W. Afr. II, p. 166 (1837). *Pogonias major*, Less. Traité d'Orn. 159.

Hab. Senegambia: Casamanze, Bissao (*Verreaux*).

This strange-looking Barbet is the type of the genus *Pogonorhynchus*, of which it is the largest species. The most closely allied to it are *P. rolleti* (*Defil.*), which has the throat black, and *P. bidentatus* (Shaw), which wants the conspicuous band of black on the breast. It may further be identified by the curious transverse grooving of the lower mandible, a feature quite unique and wanting in all other Barbets of every genus. It was figured by Buffon in the "Planches Enluminées" as early as 1783, from a specimen said to be from the coast of Barbary.

According to Le Vaillant "The feet are yellow, the eyes reddish brown, the beak red "at the base, the rest yellow, shading into white towards the tip. The male and female are "alike. They inhabit forests, and build in the trunks of trees. The male and female are "always in company. Their note is loud and sonorous, and they live principally on fruits. "They are to be found in most parts of Africa, even as far north as Barbary. I found it in "Great Namaqua Land, in the forests on the banks of the Fish Rivers. In this district "they are migratory, being found there only at certain times during the year. Buffon was "the first to name this bird the Barbican."

The specimen from which our plate is taken is in the collection of Mr. R. B. Sharpe. It is an adult bird from the River Gambia.

This species is remarkable for its bill which is very large and strong, as broad as high at the base. The lower mandible is strongly grooved transversely, the upper mandible furnished with two teeth in the centre, the indentations of which are traced backwards to the nostril by two deep grooves in the surface. The rictal bristles are very strongly developed, especially on the lower mandible.

POGONORHYNCHUS ROLLETI

POGONORHYNCHUS ROLLETI.

(ROLLET'S BARBET.)

Pogonias rolleti	(1853) Defil.; Rev. Zool. p. 290.
,, ,, ...	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
,, ,, ...	(1857) Hartl.; Syst. Orn. W. Afr. p. 169.
,, ,, ...	(1859) Verr.; P. Z. S. p. 394.
Pogonorhynchus rolleti	(1861) Heugl.; Ibis, p. 123, pl. 5. fig. 1.
,, ,, ...	(1863) Goffin; Mus. P.-B. Bucc. p. 2.
,, ,, ...	(1868) Gray; Cat. Brit. Mus. Capit. p. 2.
,, ,, ...	(1869) Heugl.; Orn. Nordost-Afr. tab. xxvii.

P. sexibus similibus: major: supra niger, dorso imo albo: gutture pectoreque nigris: ventre imo coccineo.

Hab. in Africâ orientali.

Sexes alike; general plumage shining blue-black; middle of the abdomen and under tail-coverts rich red; a large spot on the rump and the flanks snow-white; bill pale greenish-yellow, bluish at the base, very powerful, deeply grooved, and strongly double-toothed; orbital skin violet; irides brown; legs and feet bluish brown; wings 4″·5, tail 3″·5.

Hab. North-eastern Africa: Nubia, White Nile (*Verreaux*, *Heuglin*).

This is the rarest species of the large subgroup of this genus, and differs from the other two by its black throat and breast. It is as large as *P. dubius*, but has not got the sulcated mandible; the rictal bristles also are fewer in number.

Von Heuglin gave a figure of this bird in 'The Ibis' (*l. c.*), and a drawing of the head in his 'Birds of North-east Africa.' He also gives the following note:—

"Found on the banks of the Upper Bahr-el-Abiad, where it is common, particularly on

the wild figs." He says the *Ficus sycomorus* appears to be the favourite fruit of the African Barbets.

Our description and the figure in the Plate are taken from the specimen in the British Museum.

POGONORHYNCHUS BIDENTATUS

POGONORHYNCHUS BIDENTATUS.

(THE RED-WINGED BARBET.)

Bucco bidentatus	(1798) Shaw; Nat. Misc. pl. 393.
Le petit Barbican	(1806) Le Vaill.; Barbus, pl. A.
Pogonia lævirostris	(1815) Leach; Zool. Misc. pl. 77. t. 17.
Pogonius le Vaillantii	(1815) Leach; Zool. Misc. pl. 117.
Bucco leuconotus	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 242.
Le Barbu à dos blanc	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 242.
Pogonias minor	(1817) Cuvier; Règn. An. I. p. 428.
„ *lævirostris*	(1829) Cuvier; Règn. An. I. p. 457.
Laimodon bidentatus	(1846) G. R. Gray; Gen. of Birds, II. p. 428.
Pogonias bidentatus	(1854) Bonap.; Consp. Av. I. p. 145.
Laimodon lævirostris	(1856) Heugl.; Syst. Ueb. Vög. N. O. Afr. p. 47.
Pogonorhynchus bidentatus	(1861) Heugl.; Ibis, p. 123.

Akoko of the natives of Ibadan (*Hinderer*).

P. major, rostro flavicante: sexibus similibus: suprà niger, dorso imo albo, gutture pectoreque toto coccineis.

Hab. in Africâ occidentali.

Sexes alike; upper surface shining black; head indistinctly striped with red; a broad transversal band of rich red on the greater wing-coverts; quills brown, paler at the base of the inner web; a large white spot on the lower back; under surface rich red, flanks and under the wings snow-white; thighs and under tail-coverts shining black; bill double-toothed, pale yellowish, bristles black; irides purple, orbital skin orange; legs and feet yellow with a rufous tinge; wing 5″·7, tail 2″ 8.

Hab. Western Africa. Fantee (*Ussher*); Ibadan (*Hinderer*); Senegal, Guinea, Gaboon (*Verreaux*).

Additional references.—*Bucco le Vaillantii*: Vieillot (1816), N. Dict. d'Hist. Nat. IV. p. 243. *Le Barbu le Vaillant*: Vieillot (1816), N. Dict. d'Hist. Nat. IV. p. 243. *Pogonias bidentatus*: Hartlaub (1857), Syst. Orn. W. Afr. p. 170; Verreaux (1859), P. Z. S. p. 394; Gurney (1859), Ibis, I. p. 153. *Pogonorhynchus bidentatus*: Goffin (1863), Cat. Mus. Pays Bas, Buccones, p. 3; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 2; Sharpe (1869), Ibis, p. 193. *Pogonias lævirostris*: Wagler (1827), Syst. Av. No. 2.

P. bidentatus belongs to the same subgroup as *P. dubius* and *P. rolletti*; from both these it may be distinguished by its entire red breast, from *P. melanopterus* by its black upper plumage, and from all other species of this genus by its pale-yellowish bill, which is powerful and has the upper mandible furnished with two distinct teeth on each side.

The Red-winged Barbet is apparently not an uncommon bird on the West coast of Africa. Mr. Ussher, the Governor of Fantee, writes, in a letter to Mr. R. B. Sharpe, that this species is frequently to be found in the low thorn-bushes. This is an uncommon place of resort for a Barbet, especially for one of the larger species, such as this is; and the notice of it is very interesting. Nothing has been recorded of its breeding or nidification.

There are several figures of this bird in the works of the older authors, the most recent being, we believe, that given by Leach in 1815 (*l. c.*).

Our Plate is drawn from an adult specimen in our own collection sent from Fantee by Mr. Ussher, and given to us by Mr. Sharpe.

POGONORHYNCHUS MELANOPTERUS.

POGONORHYNCHUS MELANOPTERUS.

(THE WHITE-BELLIED BARBET.)

Pogonias melanopterus	(1854) Peters; Ber. Akad. Berl. p. 134.
Laimodon albiventris	(1859) Verr.; P. Z. S. pp. 393, 395, pl. 157.
Pogonorhynchus melanopterus	(1863) Goffin; Cat. Mus. Pays Bas, Bucc. p. 6.
„ „	(1868) Gray; Cat. Brit. Mus. Capitonidæ, p. 3.
„ „	(1869) V. d. Decken; Reisen in Ost-Afrika, p. 39.
„ „	(1870) Finsch & Hartl.; Orn. Ost-Afr. p. 504.
„ „	(1870) Gray; Hand-l. of B. II. p. 173.

P. sexibus similibus: major: rostro flavicante: fronte rubrâ: pectore brunneo.

Hab. in regione Æthiopicâ.

Head and neck red; the base of the feathers black from the crown down to the top of the back; the latter as well as the rest of the upper parts, the fore part of the neck, and chest earthy brown, deeper in the centre of this last, nearly all the feathers of these parts having their shafts of a white more or less pure; an oblong white spot on the centre of the rump; belly, vent, and under tail-coverts pure white; feathers of the flanks rather long and slender; thighs brown, with the edges of the plumes of the same colour, but purer; wings and tail black; the same white lines of the shafts are very conspicuous on the wing-coverts as well as on the secondaries nearest the body; beak higher than broad, with the upper mandible double-toothed, the base bluish, and furnished with bristles directed forwards, the remainder of the bill dingy yellow; tarsi strongly scutellated and, together with the toes, of a bluish colour; claws rather hooked, brown; bastard wing very short, the first, fifth, and sixth quills the longest; secondaries equal in length; their inferior coverts and the inner webs of the quills white; tail rounded. Total length 16 cent. 7 mill., length of wing when closed 8 cent. 5 mill., tail 7 cent., beak from the angle of the mouth 2 cent. 7 mill., tarsi 2 mill.

Hab. West Africa (*Verreaux*). East Africa: Mozambique (*Peters*); Mombas (*Von der Decken*).

The present bird was described as *P. albiventris* by Verreaux in the Proceedings of the Zoological Society of London for 1859, from an old male specimen from West Africa, obtained by M. Emile Parzudaki. It had, however, been previously named *P. melanopterus* by Professor Peters, of Berlin, from specimens from Mozambique. A pair were brought from Mombas, in the collection of Von der Decken. On the tickets of these was the following note:—Length 7″·75; eyes dark brownish black. Mombas, 20 Sept. 1862.

The White-bellied Barbet is a very rare bird; and, as far as we know, there are no specimens of it in England. Our Plate and description are copied from those of M. Verreaux in his paper in the 'Proceedings' (*l. c.*). We have never seen the bird ourselves.

J. G. Keulemans, Del. & Lith.

F. W. H. Trap, London, imp.

POGONORHYNCHUS LEUCOCEPHALUS.

POGONORHYNCHUS LEUCOCEPHALUS.

(THE WHITE-HEADED BARBET.)

Laimodon leucocephalus	(1853) Defil. Rev. et. Mag. de Zool. p. 291.
,, ,, ,, ...	(1859) Verreaux, P. Z. S. p. 895.
Pogonorhynchus ,, ...	(1861) Heuglin, Ibis, p. 123, pl. 5, fig. 2.
,, ,, ,, ...	(1863) Goffin, Mus. Pays Bas, Bucc. p. 4.
,, ,, ,, ...	(1868) G. R. Gray, Cat. Brit. Mus. Capit. p. 2.
,, ,, ,, ...	(1869) Heuglin. Ornith. Nordost. Afrikas, t. XXVII.

P. sexibus similibus: supra terricolor: capite, gutture, pectore et uropygio niveis.

Hab. in Africa orientali.

Sexes alike; entire head, neck, a transverse band across the wings, throat, breast, upper and lower tail-coverts snow white; rest of the plumage umber brown; wing-coverts and abdomen streaked with white; bill black, armed with two teeth; rictal bristles stiff and not numerous, white; irides brown; orbital skin dusky violet; legs and feet blue-black; wing $3\frac{1}{2}$; tail 2 2-10.

Habitat. Eastern Africa, Nubia, White Nile (*Brun-Rollet*), Bongo (*Heuglin*).

This Barbet is the most sombre-plumaged of the genus *Pogonorhynchus*, and is remarkable for its pure white head, throat, and breast, which characteristics make it distinguishable at a glance from its congeners. It is also the only member of the whole family which has white rictal bristles. According to Von Heuglin there is a streak of fine sulphur-yellow over the eye, which it loses after death. This we omitted in the accompanying plate, as we observe that Von Heuglin has not painted it in his figure in the "Ibis;" we are, therefore, unable to determine with certainty the position or exact colour of it, and it can hardly be of much importance, as the only writer who has called attention to it has not shewn it in his own drawing. It was described by the above author in a paper on the

Barbets of North-Eastern Africa, published in the Ibis for 1861 (*l.c.*). A plate accompanied the description, but it is a very inferior one. He states that it is "common on the banks "of the upper Bahr-el-Abiad, among the foliage of the high trees ; the stomachs of speci- "mens obtained were full of berries, wild figs, and insects. The faces of the birds were "in several instances stained yellow with the juice of the berries they had been eating."

The first naturalist who sent home specimens of this Barbet was Brun-Rollet. He obtained them on the White Nile. They were presented to the Turin Museum, but as far as we can find out no account of their habits was recorded at the time.

The original description from these specimens was given by Defillipi in the "Revue Zoologique" for 1853 (*l.c.*).

This Barbet is rare in collections. The description and accompanying plate is taken from a male belonging to the Leiden Museum, which Professor Schlegel very kindly lent to us and permitted us to take to England for comparison and figuring in this work, an act of courtesy which can only be fully appreciated by those who know the value of rare specimens. This identical bird was obtained in Bongo by Von Heuglin.

POGONORHYNCHUS ABYSSINICUS

POGONORHYNCHUS ABYSSINICUS.

(THE BLACK-BELLIED BARBET.)

Phytotoma abyssinica	(1801) Lath.; Ind. Orn. Suppl. p. xlix.
Bucco saltii	(1814) Stanl.; Salt, Trav. Abyss. App. p. 4.
Pogonias rubrifrons	(1823) Swains.; Zool. Ill. pl. 68.
„ *hæmatops*	(1827) Wagl. Syst. Av. spec. 4.
Phytotoma tridactyla	(1801) Daud.; Tr. d'Orn. II. p. 366.
Pogonias brucei	(1837) Rüpp.; P. Z. S. p. 50.
Laimodon saltii	(1846) G. R. Gray; Gen. of Birds, II. p. 428.
Pogonias saltii	(1857) Hartl.; Syst. Orn. W. Afr. p. 170.
Pogonorhynchus saltii	(1861) Heugl.; Ibis, p. 123.
„ *abyssinicus*	(1863) Goffin; Mus. Pays-Bas, Bucc. p. 5.
„ „	(1868) Gray; Cat. Brit. Mus. Capit. p. 3.

P. minor, rostro nigro, suprà niger, capite guttureque coccineis.

Hab. in parte septentrionali Africæ orientalis.

Sexes alike; general plumage black; feathers of the head indistinctly tipped with red; a broad streak over the eye, face, throat, and breast scarlet; wing-coverts broadly edged with greyish white; quills brown, inner web pale yellowish at base; primaries finely edged on the exterior web with white; secondaries and tertiaries bordered with sulphur-yellow, shading into white towards the tips; bill black. Wing 3″·2, tail 2″.

Hab. Abyssinia (*Rüppell*); Dongolo (*Blanford*); Bogos-land, Bejook, Waliko, Gabena-weldt-Gonfallon (*Jesse*).

This species most resembles *P. torquatus* in colouring—but cannot be mistaken for it, on account of the black upper plumage, which is mottled grey in *P. torquatus*. Dr. Rüppell, in a letter to the Zoological Society in 1837, identifies this bird with *Phytotoma tridactyla*

Additional references.—*Bucco saltii*: Latham (1822), Gen. Hist. III. p. 238; Rüppell (1837), P. Z. S. p. 50. *Pogonias brucei*, Rüppell (1835), Wirb. Av. t. 20. f. 1. *Laimodon saltii*: Verreaux (1859), P. Z. S. p. 396; Bonaparte (1854), Consp. Volucr. Zygod. p. 12. *Pogonorhynchus abyssinicus*: Blanf. Abyss. p. 309.

(Daud.) and with *Bucco saltii* (Stanley), and proposes to change the name to *Pogonias brucei*, without giving any reason for the innovation. It is also synonymous with *Phytotoma abyssinica* of Latham; and this specific name has the priority.

There is a specimen in the Derby Museum, at Liverpool, marked "*Pogonorhynchus brucei*," juv., which has the throat brown, the feathers being lanceolate, and edged with white, the breast and belly white, barred with brown, the lower belly dirty yellow, similarly barred. The forehead is scarlet, the top of the head black; the back is brown, varied with white; and the quills are earthy brown, bordered largely with yellow. This may be a stage of the young bird.

Dr. Rüppell says that these birds live alone or in pairs, and climb the long thin branches of the trees or brushwood, searching for berries or grasshoppers. Their note is loud, but monotonous. They are rare.

Mr. Blanford, the Geologist to the Abyssinian Expedition, observes (*l. c.*):—

"I obtained one specimen of this bird close to the camp at Dongolo, on a Dahro (*Ficus Dahro*); but I never saw it on the higher portions of the plateau, above 7000 feet. In July pairs were occasionally seen on high trees making a great noise, and probably engaged in breeding." Mr. Jesse likewise obtained it in the Bogos country. Specimens from the localities specified above are in Mr. Sharpe's collection.

We are indebted to Mr. Eyton for the specimen from which the description and plate have been taken.

J. G. Keulemans del. & lith.

P.W.M.

POGONORHYNCHUS TORQUATUS.

POGONORHYNCHUS TORQUATUS.

(THE BLACK-COLLARED BARBET.)

Bucco torquatus	(1806) Dum.; Dict. Sci. Nat. IV. p. 56.
Pogonias nigrithorax	(1817) Cuv.; Règn. An. I. App. p. 428.
„ *personatus*	(1823) Temm.; Pl. Col. pl. 201.
Bucco nigrithorax	(1829) Cuv.; Règn. An. p. 457.
Laimodon nigrithorax	(1846) G. R. Gray; Gen. of Birds, II. p. 428.
„ *nigrothorax*	(1862) Gurney; Ibis, IV. p. 32.
Pogonorhynchus torquatus	(1863) Goff.; Mus. Pays Bas, Bucc. p. 4.
„ *nigrithorax*	(1864) Kirk; Ibis, VI. p. 328.

P. minor, rostro nigro, capite toto guttureque coccineis: dorso cinerascenti-fusco, sulphureo lavato.

Hab. in Africâ meridionali.

Sexes alike; forehead, top of the head, sides of the face, and throat scarlet; occiput, nape, and a broad band, bordering the red and meeting on the breast so as to form a pectoral gorget, shining black; back, shoulders, and wing-coverts light ashy brown washed with sulphur-yellow, and finely mottled; wings and tail dark brown, inner webs of the quills pale yellowish at their base; exterior web of the secondaries and tertiaries edged with sulphur-yellow; under surface greyish white, washed with sulphur-yellow; bill black; irides bright rufous-brown; legs and feet brown (*Ayres*), black (*Temminck*); length 6″·5, wing 3″·7, tail 2″·6 (*Layard*).

Hab. Valleys of the Zambesi (*Kirk*); Natal (*Ayres*); Central Africa (*Burchell*); Kaffraria (*Verreaux*); Highlands near Graham's Town, Cape of Good Hope (*Layard*); Uzarano (*Speke & Grant*).

Additional references.—*Bucco torquatus*: Cuvier (1829), Règn. An. p. 457. *Pogonias personatus*: Lesson (1831), Trait. d'Orn. p. 160; Wagl. (1827), Syst. Av. spec. 3; Cuvier (1829), Règn. An. p. 457. *Laimodon nigrithorax*: Bonaparte (1854), Consp. Volucr. Zygod. p. 12; Verreaux (1859), P. Z. S. p. 395; Layard (1867), Birds of S. Afr. p. 233. *Læmodon nigrithorax*: Layard (1869), Ibis, p. 373. *Pogonorhynchus torquatus*: Sclater (1864), P. Z. S. p. 112; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 2; Cab. (1870) in Van der Decken, Reisen in Ost-Afrik. III. p. 503.

P. torquatus differs from all the other species of the genus *Pogonorhynchus*, except *P. abyssinicus* and *P. melanopterus*, by its red head and throat; it is most nearly allied to the former, which differs from it in having a black back and abdomen; the latter is a yellow-billed species, and belongs to a separate subgroup.

According to Temminck the Black-collared Barbet was first sent home by Burchell during his travels in Central Africa; it has since been sent by Lalande from the Cape of Good Hope. It is 7 inches long, and its feet and bill are black.

Mr. G. R. Gray, in his 'Catalogue of the Capitonidæ' in the British Museum, refers Le Vaillant's pl. 28 of the 'Histoire Nat. des Oiseaux de Paradis' to this bird; but in that he is mistaken. Le Vaillant's bird comes from America, and has the margin of the upper mandible smooth; Le Vaillant's figure seems to have been taken from a made-up specimen, as there is no species with which we are able to identify it.

Mr. Kirk, in a paper on the birds of Zambesi in the 'Ibis' (*l. c.*), mentions that *P. torquatus* is common in the open valleys, and is found principally on the fig-trees. It breeds in hollow trees (*Layard*).

Mr. J. H. Gurney, on the Birds of Natal (*l. c.*), gives the following account of its habits, on the authority of Mr. Ayres:—

"Their food appears principally to consist of small fruits and berries, which they swallow whole. Their note is particularly loud, the syllables *kook koroo*, repeated eight or ten times, would give a good idea of it; frequently both male and female call at the same time, and when perched close together keep up a quick succession of bows to each other, bowing at the repetition of each note. They are tolerably plentiful within a range of fifteen miles from the coast."

The specimen brought from Urazano by Capt. Speke was marked, "found among the upper branches of the highest trees."

The description and Plate are taken from specimens lent to us by Mr. T. C. Eyton. Temminck's is the only other figure of this bird of which we are aware.

POGONORHYNCHUS VIEILLOTI.

POGONORHYNCHUS VIEILLOTI.

(VIEILLOT'S BARBET.)

Le Barbu rubicon	(1807) Levaill.; Barbus, p. 43, Suppl. fig. D.
Pogonias vieilloti	(1815) Leach; Zool. Misc. t. 97.
Le Barbu brunâtre	(1816) Vieill.; N. D. d'Hist. Nat. III. p. 241.
Bucco fuscescens	(1816) Vieill.; N. D. d'Hist. Nat. III. p. 241.
Pogonias senegalensis	(1823) Licht.; Verz. Doubl. p. 9.
„ *rubescens*	(1825) Temm.; Pl. Col. Texte, p. 34.
„ *rubicon*	(1829) Cuv.; Règn. Anim. p. 457.
Laimodon vieilloti	(1846) Gray; Gen. of B. II. p. 428.
Pogonorhynchus vieilloti	(1850) Strickl.; P. Z. S. p. 219.

P. minor, rostro nigro: suprà terricolor: gutture pectoreque coccineo maculatis.

Hab. in Africâ occidentali et orientali.

Sexes alike; head and nape vermilion, with the basal half of the feathers black; upper plumage earthy-brown; the sides of the neck and back variegated with white, the lower back with dull yellow; secondaries and inner cubitals finely bordered with the same colour; under surface yellowish white; the feathers of the sides of the head, throat, breast, and middle of the abdomen broadly tipped with vermilion; irides deep red; bill black; legs and feet dusky brown. Wing 2″·7, tail 1″·8.

Hab. Senegal (*Verreaux*); Gaboon (*Verreaux*); Gold Coast, Fantee (*Sharpe*); Elmina (*Weiss*); Nubia (*Verreaux*); Cordofan (*Strickland*).

There is no other species with which this bird can be confounded; its strangely spotted

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Additional references.—*Pogonias vieilloti*: Less. (1831), Traité d'Orn. p. 160; Hartl. (1850), Contr. Orn. p. 131; Hartl. (1857), Orn. W. Afr. p. 170; Dohrn (1866), P. Z. S. p. 331. *Laimodon vieilloti*: Bp. (1854), Consp. Vol. Zyg. p. 12; Verr. (1859), P. Z. S. p. 396. *Pogonorhynchus vieilloti*: Heugl. (1861), Ibis, p. 123; Goff. (1863), Mus. Pays-Bas, Bucc. p. 6; Gray (1868), Cat. B. M. Capit. p. 4; Sharpe (1869), Ibis, p. 193; id. (1871), Cat. Afr. B. p. 15. *Pogonias rubescens*: Wagler (1827), Syst. Av. *Pogonias*, no. 5.

breast catches the eye at once. Nothing is recorded of its habits; a good number of specimens come from time to time, and it is to be found in nearly all the museums.

It is the most common species in Kordofan, Abyssinia, and Sennaar; the most northern limit of its range is between 14° and 15° north latitude.

Our description and the figure in the Plate are taken from Fantee specimens in our own collection. This bird has not been figured since the works of Le Vaillant and Leach.

POGONORHYNCHUS LEUCOMELAS.

POGONORHYNCHUS LEUCOMELAS.

(THE PIED BARBET.)

Le Barbu du Cap de l'espérance	(1783) Buff.; Pl. Enl. Vol. VII. pl. 688. f. 1.
Le Barbu à plastron noir	(1783) Buff.; Pl. Enl. Vol. VII. pl. 688. f. 1.
Bucco leucomelas.	(1783) Bodd.; Tabl. des Pl. Enl. 688.
Bucco niger	(1788) Gmel.; Syst. Nat. p. 407.
Le Barbu à gorge noire	(1806) Levaill.; Barbus, pls. 29, 30, 31.
Bucco rufifrons	(1815) Steph.; Gen. Zool. IX. pt. I. p. 31.
Pogonia stephensi	(1815) Leach; Zool. Misc. II. t. 116.
Pogonias niger	(1829) Cuv.; Règn. An. p. 457.
„ *unidentatus*	(1842) Licht.; Verz. Vög. Kafferl. p. 17.
Laimodon leucomelas	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
„ *unidentatus*	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
Pogonias leucomelas	(1852) Strickl. & Sclat. Contr. Orn. p. 155.
Pogonorhynchus leucomelas	(1863) Goff.; Mus. P. B. Bucc. p. 7.

P. sexibus similibus: minor: rostro nigro: fronte coccineâ: occipite nigro: gutture, pectoreque medio nigris.

Hab. in Africâ occidentali et septentrionali.

Sexes alike; forehead and top of the head crimson; upper plumage, a broad line down the side of the head and neck, throat and the middle of the breast black; a broad stripe above the eye sulphur-yellow, shading into white down the sides of the occiput and neck; back and wing-coverts irregularly striped with bright yellow, the rump being almost entirely of that colour; the feathers of the shoulders broadly edged with white; quills and tail brown, exterior web narrowly bordered with bright yellow; a large oval moustachial spot and the under surface white; irides brown; bill and feet black. Length 6″, wing 3″·6, tail 2″·8.

Hab. Cape Colony (*Layard*); Kaffraria (*Verreaux*); Transvaal (*Ayres*); Damaraland (*Andersson*); Ondonga (*Andersson*); Benguela (*Monteiro*).

Additional references.—*Bucco niger*: Lath. (1790), Ind. Orn. p. 204; Vieill. (1816), N. Dict. d'Hist. Nat. III. p. 242. *Laimodon leucomelas*: Layard (1867), B. of S. Afr. p. 232, no. 463. *Laimodon unidentatus*: Bp. (1854), Consp. Vol. Zyg. p. 12; Verr. (1859), P. Z. S. p. 395; Layard (1867), B. of S. Africa, p. 233, no. 464. *Pogonias leucomelas*: Mont. (1865), P. Z. S. p. 95. *Le Barbu à gorge noire*: Vieill. (1816), N. D. d'Hist. Nat. p. 242. *Pogonias niger*: Wagler (1827), Syst. Av. no. 6. *Pogonorhynchus leucomelas*: Gray (1868), Cat. Brit. Mus. Capit. p. 3; Sharpe (1871), Cat. Afr. B. p. 15.

This species is one of the smaller group of tooth-billed South-African Barbets, and is most nearly allied to *P. diadematus* and *P. melanocephalus*. Of these two the former has the chin and throat white; the latter has the forehead black and the superciliary ray pure white; but in all other respects they are similar to this species.

The following account of its habits is extracted from Levaillant's work:—

"They are very common in Africa; and I found them frequently on both coasts, from 30° S. lat. up to the tropics. They inhabit the mimosa forests on the east. I first found them near the river Gampto and on the west near Nameroo and the Camis Mountains. They are very common in Caffraria and the great Namaqua. They are by nature not shy; and their flight is very laboured, on account of their heavy body and short wings. They are easily approached. Their cry sounds like *cou, cou*, repeated at short intervals, in a tone disproportionately loud for the size of the bird. They feed on insects and fruit. They are found in pairs; and when one is killed the other hovers round uttering plaintive cries. They breed in holes of trees like Woodpeckers; the female lays her eggs, which are pure white, and four in number, on the decayed wood at the bottom, without any lining interposed: the male takes his turn at incubating the eggs. I have seen and closely examined over twenty nests; they are easily found on account of the fearless nature of the birds. They sometimes occupy part of the large nests of the sociable Weaverbirds."

Levaillant also gives several other interesting details of the habits of this bird.

Mr. J. J. Monteiro, in a paper in the Zoological Society's 'Proceedings,' January 1865, on a collection of birds from Benguela, gives the following useful note:—

"Their stomachs contained different kinds of small seeds; but their principal food appears to be the fibrous bark of some herbaceous plants, as in both these specimens, as well as several others that I have examined, the stomachs always contained masses of green bark. Its strong, toothed bill would appear to be adapted, therefore, more for the purpose of tearing or cutting its bark food than for crushing seeds, as might appear at first sight, for I never found their stomachs to contain the remains of the latter."

Mr. E. L. Layard, in his 'Birds of South Africa,' gives the following account of it:—

"It is common in mimosa bushes throughout the Karoo, and has apparently a very wide range. It is a solitary bird, never more than one pair being seen together, and that seldom. Its call is similar to that of the Indian *Bucco indicus* (*X. hæmacephala*). While uttering its cry it remains stationary in some tree, but evidently expends much labour on

its monotonous call, its body being jerked up and down the while. It feeds on fruits and berries, and is said to build in hollow trees."

Mr. Layard also quotes the following note given by Mr. Atmore:—"I see them frequently feeding on the ground; they nestle in holes of trees, but do not make the holes: they lay spotted eggs."

It is quite clear that Mr. Atmore must be referring to some other bird of a different genus; for none of the Barbets are known to lay spotted eggs, and they seldom, if indeed ever, descend to the ground.

Since writing the above, the following note has been received from Mr. Layard:—

"In addition to what is stated in the 'Birds of South Africa,' I may add that Mr. H. Jackson declares the eggs are *white*, and sends some specimens for inspection. They are elongated, roughish, not shiny. Axis 11‴, diam. 8‴. I found the bird common in the Albany district; and one evening, at 'Table Farm,' near Graham's Town, we took five out of a hole in the stem of an aloe flower (*Agave americana*), being the old male and female and three young birds (all fully fledged however). Mr. White's family, residing at the farm, assured me that they always retired to roost in this way, and that they dug the holes for themselves. The flower-stump was quite dead and dry; and any one who knows the hardness of the *Agave*-stem *when dry*, must concede that they had some tough work to do to bore through the silicious rind, though the interior is soft enough. It is upon these birds and *P. torquatus* that the various 'Honey-guides' (*Indicator*) are parasitic. I find that Mrs. Barber, no mean authority, says the eggs are spotted."

Our description and the figures in the Plate are taken from specimens in our own collection from Damaraland, given us by Mr. Sharpe.

POGONORHYNCHUS UNDATUS.

POGONORHYNCHUS UNDATUS.

(THE UNDULATED BARBET.)

Pogonias undatus	(1835) Rüppell; Neue Wirb. Taf. 20. fig. 2.
Laimodon undatus	(1846) Gray; Gen. of B. p. 429.
Pogonorhynchus undatus	(1863) Goffin; Mus. Pays Bas, Bucc. p. 8.
„ „	(1868) Gray; Cat. Brit. Mus. Capit. p. 3.
„ „	(1870) Blanford; Geol. and Zool. Abyss. p. 310.
„ „	(1870) Finsch; Trans. Zool. Soc. VII. p. 282.
„ „	(1870) Gray; Hand-l. of B. II. p. 173.
„ „	(1871) Sharpe; Cat. Afr. B. p. 15.

P. minor: rostro nigro: fronte coccineâ: pectore flavicante, brunneo maculato.

Hab. in Abyssiniâ.

Forehead and top of the head vermilion; occiput, nape, and sides of the head black, the latter being irregularly spotted with white; throat black; a stripe commencing behind the eye, and extending down the side of the neck, snow-white; upper plumage brownish black, variegated with white on the back and with sulphur-yellow on the rump and upper tail-coverts; wings and tail pale brown, the exterior webs of the quills and tail being narrowly edged with pale yellow; under surface pale yellowish in the centre and white at the sides, thickly and irregularly spotted with brownish black; bill black; legs dusky; iris pale greyish-yellow (*Blanford*); iris white (*Jesse*). Wing 3″, tail 2″.

Hab. Abyssinia and Senaar (*Rüppell, Heuglin*); Bogos Country (*Blanford, Jesse*).

The Plate and description have both been taken from the specimen in the British Museum, which is the only one that we have seen. It was obtained from the Frankfort Museum. It is evidently a bird in immature plumage, and may possibly turn out to be the young of *P. abyssinicus*; but as that point cannot be settled without a larger series, the colouring being very distinct, and the species having been accepted by most of the authorities on the Abyssinian avifauna, we have retained the name and figured it in a separate Plate.

Mr. Jesse, during his journey in Abyssinia and Bogos Land, found it to be not plentiful in the localities he visited. He observed it, however, at Senafé, at Rayrayguddy, in May, and at Kokai, on the Anseba, in August. He adds:—"Seen hawking insects like a Fly-catcher, returning to its perch on a dead bough." Mr. Blanford gives the following note:—"Not rare about Adigrat and Senafé. Close to the shrine of St. Romanos I shot a specimen, which was hanging head downwards from a branch, feeding upon fruit."

There is one figure of this species in Rüppell's 'Neue Wirbelthiere.'

POGONORHYNCHUS DIADEMATUS.

POGONORHYNCHUS DIADEMATUS.

(THE CROWNED BARBET.)

Laimodon diadematus . . .	(1856) Heugl.; Syst. Uebers. Vög. N. O. Afr. p. 47, et Beitr. t. 28. f. 1.
Pogonorhynchus diadematus . .	(1861) Heugl.; Ibis, p. 126, pl. 5. fig. 3.
,, ,, . .	(1863) Goffin; Mus. Pays-Bas, Bucc. p. 9.
,, ,, . .	(1864) Heugl.; Orn. N. O. Afr. tab. xxvii.
,, ,, . .	(1868) Gray; Cat. Brit. Mus. Capit. p. 4.

P. minor: rostro nigro: fronte rubrâ: occipite nigro: gutture toto albo.

Hab. in Africâ orientali.

Sexes alike; forehead and top of the head crimson, upper plumage and a broad line down the sides of the head and neck black; a stripe above the eye sulphur-yellow, shading into white down the sides of the occiput and nape; back and wing-coverts irregularly striped with bright yellow, the rump being almost entirely of that colour; the feathers of the shoulders broadly edged with white; quills and tail brown, exterior webs narrowly bordered with bright yellow; under surface entirely white, with a yellowish tinge on the breast; wing 3″, tail 2″.

Hab. Banks of the Bahr-el-Abiad (*Heuglin*).

"Only found in the wide steppes of the Kitsch negroes, between 7° and 8° north latitude, on the western bank of the Bahr-el-Abiad. It is common on high trees, especially in the colossal sycamores. Its food consists of insects, berries, and fruit; it has a loud and lively note." (*Heuglin*, l. c.)

This very rare species was first described by Von Heuglin; he has given two figures of

it, one in 'The Ibis' and one in his 'Birds of North-east Africa.' It is very similar to *P. leucomelas*, the only difference being the white throat and breast.

We are indebted to Dr. Krauss, of the Stuttgart Museum, for the loan of a specimen of this bird (there is not one in England), from which our description and Plate are taken.

POGONORHYNCHUS MELANOCEPHALUS.

POGONORHYNCHUS MELANOCEPHALUS.

(THE ABYSSINIAN BARBET.)

Pogonias melanocephalus	(1827) Rüpp.; Atl. t. 28. fig. *a*, p. 41.
„ *bifrenatus*	(1828) Ehrenb.; Symb. Phys. t. 8. fig. 2.
„ *melanocephalus*	(1852) Sclat.; Contr. Ornith. p. 126.
Laimodon bifrenatus	(1846) Gray; Gen. of B. II. p. 429.
„ „	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Pogonias bifrenatus	(1854) Hartl.; Journ. f. Orn. p. 197.
„ „	(1857) Hartl.; Syst. Orn. W. Afr. p. 171.
Laimodon bifrenatus	(1859) Verr.; P. Z. S. p. 396.
Læmodon melanocephalus	(1859) Heugl.; Ibis, p. 343.
Pogonorhynchus bifrenatus	(1861) Heugl.; Ibis, p. 124.
„ *melanocephalus*	(1863) Goffin; Mus. P.-B. Bucc. p. 10.
„ „	(1868) Gray; Cat. Brit. Mus. p. 4.

P. sexibus similibus: minor: rostro nigro: capite guttureque nigris.

Hab. in Africâ.

Sexes alike; head, neck, throat, and centre of breast black; a narrow stripe over the eye, extending down the sides of the neck, and a moustachial streak snow-white; upper plumage dark brown, irregularly striped with sulphur-yellow, more so on the rump; exterior webs of the greater wing-coverts, quills, and tail bordered with the same colour; the tertiaries have the exterior webs margined with white; under surface white; the black of the throat comes down to a point on the breast, and some of the feathers have the shafts extended slightly beyond the webs; bill, legs, and feet black; wing $2''{\cdot}65$, tail $1''{\cdot}75$ in dried specimens.

Hab. Abyssinia (*Rüppell*, *Heuglin*); Angola (*Henderson*).

This species was first described by Rüppell in 1827. In general plumage it is similar

to *P. leucomelas* and *P. diadematus*, the distinctive points being the black forehead and white eye-stripe; it is also somewhat smaller than both the above-named birds. We are not able to give any particulars of its habits. Our Plate and description are taken from the specimen in the British Museum.

MEGALÆMA VIRENS

MEGALÆMA VIRENS.

(THE GREAT BARBET).

Le grande Barbu de la Chine . .	(1783) Buffon, Pl. Enl. 871, vol. 7, p. 434.
Bucco virens	(1783) Boddaert, Table des Pl. Enl. d'Aub. 871.
,, *grandis*	(1788) Gm., Syst. Nat. I, p. 408.
Capito grandis	(1816) Vieill, Nouv. Dict. d'Hist. Nat. IV, p. 499.
Megalaima virens	(1841) G. R. Gray, Genera of birds, p. 429.
,, *grandis*	(1842) do., do., Appendix p. 12.
Bucco grandis	(1850) Bonaparte, Conspectus Avium, p. 143.
Megalaima virens	(1856) Horsf. & Moore, Catalogue, E. I. Museum, p. 635.
,, ,, ...	(1862) Jerdon, Birds of India, No. 308.
Bucco grandis	(1833) Temminck, Pl. Col. 871.
Megalaima grandis	(1806) Le Vaillant, Barbus, Pl. 20.
,, ,, ...	(1832) Gould, Century of birds pl. 46.
,, *virens*	(1863) Goffin, Mus. Pays-bas, Buccones, p. 12.
,, ,, ...	(1868) G. R. Gray, Cat. Brit. Mus. Capit. p. 5.

NATIVE NAMES.

Kaniong-pho of the Lepchas.

Nyahul or Neoul of the Kumalis and Nipalese.

LATIN DESCRIPTION.

M. maxima: capite toto nuchâque saturate violaceis: dorso olivascenti-brunneo.

Hab. in regione Himalayanâ.

Sexes alike ; entire head, nape and neck deep violet blue; back, shoulders and upper wing-coverts olive brown, the feathers of the upper back being centred longitudinally with pale yellowish green, forming an irregular demi-collaret, more or less defined in different specimens, and separating the violet from the brown of the back ; quill-feathers brown on the inner web, margined with pale yellow, the outer web bright green changing into brown towards the tip of the primaries ; rump and upper tail-coverts bright green, tail rather darker green, the inner webs of the outer tail feathers edged with brown : breast brown, sides of the breast and abdomen pale yellowish green with large brown blotches ; centre of the abdomen, from breast to vent bluish green, vent mixed green and yellow, lower tail-coverts crimson.

Bill yellow, deep yellow at base, pale greenish yellow in the middle and at the tip of

lower mandible, tip of upper mandible black, extending more or less along the culmen; naked orbital skin and eyelids blackish, smooth, irides deep dirty crimson (Hodgson) or red brown (*Hodgson*) legs dull greenish yellow, sometimes tinged with dirty grass green.

Habitat, China (*Swinhoe*). Whole Himalayan Region, from Cashmere to Assam: Cashmere (*Adams*), Simla (*Col. Tytler*), Nepal (*Hodgson*), Sikkim (*Jerdon*), Assam (*Jerdon*).

This Barbet is the type of the genus *Megalæma*, and has been described and figured by most of the authorities on Asiatic ornithology. It is the largest of the whole family, and easily distinguishable by its peculiar colouring from the remaining species. In general form, and in the bill it closely resembles the Toucans. In habits it is solitary, frequenting the tops of high trees, occasionally descending to the ground; its food consists of both fruits and insects; it breeds in May, choosing a soft and decayed tree, in which it excavates a hole for itself after the manner of Wood-peckers, and deposits its eggs on the bare soft wood, without lining the hole with any foreign material. The eggs, three or four in number, are pure white; oval in shape. The note is monotonous but musical, and very loud; it is well-known to travellers in the Himalayas, striking even the least observant, by its sudden contrast with the intense silence of the forests. Jerdon describes it as sounding like *pio-pio-pio*, while Hutton writes it *hoo-hoo-hoo;* the former syllables, we think, give the best idea of it. Its flight is strong and vigorous, but undulating, resembling the flight of *Gecinus squamatus*, as would be inferred from its short wings and heavy body. In the young birds the colouring is duller than in the adult. We have shot them in very immature plumage in September; in Murree and Simla they probably fly about the middle or end of June. The setaceous plumes, at the base of the rictal bristles, are more strongly developed than in the other *Megalæminæ*, forming a close bunch of plumes over the nostrils, which they partially conceal.

The following are taken from Mr. B. H. Hodgson's valuable collection of manuscript notes on the ornithology of Nepal.

M. virens. Inhabits the temperate region of Nepal from 4,000 to 10,000 feet elevation. It is common in the mountains, not gregarious, two or three being seen together at a time. It moves easily on the ground, devours ants and other insects, but chiefly inhabits trees, and feeds on fruits, builds in self-made holes in trunks of trees like a Wood-pecker, and lays three or four white eggs. The voice is very loud. It is usually met with in forests, but occasionally comes out into more open country where there is brushwood. On the 20th of May, in a deep ravine descending from the heights of Sheeapoor Forest, I found the nest of this bird in the decayed trunk of a large tree, and got

the female bird, the eggs being similar to, but larger than those of *M. canicaps.* A bird shot on April 10th was in full breeding plumage, testes developed, intestines 14 inches long, very wide, no cæca. The stomach was gizzard-like but thinner, and full of the leaves of some odorous flower like roses, the end of the asophagus dilated to form an upper stomach of soft thick fleshy coats, toes zygodactyle, ten feathers in the tail.

September 2nd. Another bird in full moult, the legs dirty grass green, tongue longish, flat, cartillaginous near the tip which was obtuse, bifid, and filamentous. Upper mandible near gape tumid and overhanging.

May 31st. A male bird obtained; tongue with fleshy base, but the rest pure cartillage, tip bifid, and sides sub-jagged, stomach cartillaginous, muscular, intestines wide, containing shining green coleoptera and berries.

May 15th. Stomach oval, outer coat of medial even thickness, inner coat toughish, smooth, contained pulpy fruits and a beetle.

October 1st. A female, the stomach found to contain beetles only.

May 28th. A male, the stomach was found to contain soft berries only.

February 6th. Pulpy berries only. April 20th, pulpy fruits only. 26th April, pulpy fruits only.

In the immature bird the bill is nearly white, the lining of the stomach is neither tough nor grooved.

The following table gives the most divergent dimensions met with in a long series:—

Length	11.5		13	13	13	13.25	13.25
Expanse . . .	16		18	18	18.5	18.5	17.5
Bill			2	1.3	2.1		
Tail			4.5	4.5	4.6		
Weight	6½ oz.			6½ oz.	6½ oz.		6 oz.
Intestines . .	16	13	14	15	14	15½	15½
Cœca	none	none	none	none	none	none	none
Sex	♀	♀ juv.	♀	♂	♂ old	♀	♀

The wing varies in length from 5 to 5.5 inches, and when closed reaches to within 2.75 of tip of tail. The tarsus varies from 1.2 to 1.25 inches, or about one-third of an inch shorter than the bill. These latter dimensions were taken from dry skins, the ones in the table were made in the flesh by Mr. Hodgson. In the wings the 4th and 5th quills are usually longest, but this character is not permanent.

Further notes on the habits and structure of this bird will be found in the appendix.

The specimen figured in the accompanying plate is life size, rather fore-shortened. It is from our collection, and was shot at Simla. We have examined the specimens from China in Mr. Swinhoe's collection, and find no noticeable difference between them and specimens from the Himalaya.

A good figure of the palatine bones of *M. virens* is to be found in Eyton's 'Osteologia Avium,' Plate XII, figure 3. For drawings of the bird see Le Vaillant's Barbus, table 20, and Temminck's Planches Coloriées, No. 871. A figure of the egg is also given in Thienemann's work on Bird's-eggs, t. xii, fig. 9.

MEGALEMA CHRYSOPSIS.

MEGALÆMA CHRYSOPSIS.

(THE GOLDEN-FACED BARBET.)

Megalaima chrysopsis . . . . . (1863) Goffin; Mus. Pays-Bas, Bucc. p. 15.
" " . . . . . (1863) Sclater; P. Z. S. pp. 206, 210.
" " . . . . . (1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 6.

Native name, *Tokon Tokon Mas*, Borneo (*Motley*).

M. sexibus similibus: viridis: gutture cinerascenti-albo: fronte nitenti-sulphureâ: regione paroticâ nigrâ.

Hab. in insulâ "Borneo" dictâ.

Sexes alike; body green, of large size; lores scarlet, forehead and sinciput shining sulphur-yellow, the feathers of the centre of the occiput and nape have the basal half brown, are broadly tipped with scarlet and edged laterally with cobalt-blue, giving the appearance of red spots on a blue ground, the feathers on each side entirely cobalt; ear-coverts, a broad streak above and below the eyes black; the upper plumage rich dark green, the feathers of the back, shoulders, and wing-coverts broadly bordered with lighter green; quills brown, inner webs pale yellowish at the base, the exterior web of the primaries edged with green, the secondaries more broadly so, especially the innermost, which are almost entirely green; chin, throat, and upper breast brownish grey washed with light marine-blue, more so on the upper breast; under surface bright grass-green; tail underneath greenish blue; bill, legs, and feet black; rictal bristles black, strongly developed.

Hab. Borneo (*Motley*).

According to Motley, this beautiful Barbet is rare in Borneo; his specimens were procured by a native hunter far up the Riam Kiwa river.

This species was first separated by Goffin from *M. chrysopogon*, with which it has been considered identical. They very closely resemble each other, and some specimens of the latter from Sumatra appear to be approximating to *M. chrysopsis*; but as all the specimens

from Borneo are fully characterized, and there are no authentic instances of its occurrence elsewhere, there being also a good series of both young and old of both kinds in the Leyden Museum, it is entitled to separate specific rank. The points of difference between the species are as follows:—in *M. chrysopsis* the ear-coverts and cheeks are black, sides of the occiput pure cobalt, forehead shining sulphur-yellow, and moustachial stripe yellow; in *M. chrysopogon* the ear-coverts and cheeks are brown, sides of the occiput spotted with scarlet as in the centre, forehead grey, and moustachial stripe golden.

Nothing is recorded of its habits, and it is as yet a decidedly rare bird.

The figure in our Plate was drawn from a specimen in our own collection, obtained from Borneo, and represents an adult bird in full plumage. It has never been previously figured.

MEGALÆMA CHRYSOPOGON

MEGALÆMA CHRYSOPOGON.

(THE GOLDEN-BEARDED BARBET.)

Bucco chrysopogon	(1824) Temm.; Pl. Col. pl. 285.
Megalaima chrysopogon	(1846) Gray; Gen. of B. II. p. 429.
Chotorea chrysopogon	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Megalæma chrysopogon	(1863) Sclater; P. Z. S. p. 206.

M. sexibus similibus, viridis, gutture cinerascenti-albo, fronte albescenti-brunneâ.

Hab. in insulâ "Sumatra" dictâ.

Sexes alike. Body green; lores and in front of the eyes scarlet; forehead and sinciput shining whitish-grey, the feathers of the latter being tipped with scarlet; a broad stripe above and below the eyes, and the ear-coverts, umber-brown; the feathers of the occiput and nape brown, broadly tipped with scarlet, and laterally edged with cobalt-blue. The upper plumage rich dark green, the feathers of the back, shoulders, and wing-coverts being edged with lighter green; the quills brown, the inner webs pale yellowish, white at the base, the exterior web of the primaries edged with green, the secondaries more broadly edged, especially the innermost, which are almost entirely green. The chin, throat, and upper breast brownish grey with a shining yellow tinge, the feathers of the upper breast being broadly tipped with light marine blue, forming a gorget; a broad mustachial stripe golden yellow; under surface light grass-green; tail underneath greenish blue; irides brown; legs and feet dull olive-green; bill black, rictal bristles long and numerous. Wing 4″·6, tail 3″, total length 11″·25.

Hab. Sumatra (*mus. nostr.*); Sonda Island (*Temminck*); Malacca (*Cantor*).

The Golden-bearded Barbet is one of the largest species of the subgroup to which it

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Additional references.—*Bucco chrysopogon*: Cuvier (1829), Règn. An. p. 457; Hartlaub (1841), Rev. Zool. p. 337; Blyth (1846), J. A. S. Beng. p. 13. *Megalaima chrysopogon*: Moore (1859), P. Z. S. p. 454; Goffin (1863), Cat. Mus. Pays Bas, Buccones, p. 14; G. R. Gray (1868), Cat. Brit. Mus. Capitonidæ, p. 6. *Chotorea chrysopogon*: Horsf. & Moore (1856), Cat. Mus. E. I. C. II. p. 640.

belongs. It was first discovered by the scientific travellers sent out by the Dutch Government, and was named by Temminck. It is found in the great forests in Sumatra and the island of Sonda, where it feeds on the wild figs. Its only very near ally is *M. chrysopsis*, which was first described by Goffin in 1863; and from that it may be known by its forehead, which is yellow in the other species; they also differ in the colouring of the sides of the occiput, the ear-coverts, and the mustachial stripe. It is a common bird, being always sent in collections made up at Singapore.

Our plate and description are taken from specimens in our own collection received from Singapore.

A figure of this bird is given by Temminck in his ' Planches Coloriées.'

MEGALÆMA MYSTACOPHONUS.

MEGALÆMA MYSTACOPHANUS.

(THE GAUDY BARBET.)

Bucco mystacophanus	(1824) Temm.; Pl. Col. 315.
„ *quadricolor*	(1839) Eyton; P. Z. S. p. 105.
Chotorea mystacophanus	(1856) Horsf. & Moore; Cat. of B. II. p. 641.
Megalaima mystacophanus	(1842) G. R. Gray; Gen. of B. II. p. 429.
„ *quadricolor*	(1842) G. R. Gray; Gen. of B. II. p. 429.
Megalæma mystacophanus	(1854) Bonap.; Consp. Volucr. Zyg. p. 12.
„ *quadricolor*	(1854) Bonap.; Consp. Volucr. Zyg. p. 12.
Takoor capata cuning	Malays (*Cantor*).
Tokon tokon kechel	Borneo (*Motley*).

M. sexibus similibus: viridis: gutture coccineo, fronte aurantiacâ.

Hab. in subregione Indo-Malayanâ.

Sexes alike; green; lores scarlet, forehead and sinciput rich golden; top of the head and centre of occiput rich scarlet; a black superciliary eye-streak, wider behind the eye; upper plumage dark green, the feathers of the nape and upper back edged with lighter green; quills brown, inner webs pale yellowish at the base, and edged with green on the exterior, especially on the secondaries, the innermost of which are almost entirely green; chin, throat, and a large spot on each side of the upper breast scarlet; a yellow moustachial streak shading into green; a spot under each eye, and a broad band below the scarlet of the throat cobalt-blue; under surface grass-green; tail underneath greenish blue; rictal bristles strongly developed; bill black; feet dusky. Length about 8″·0, wing 3″·7, tail 2″.6.

Hab. Penang, Malacca (*Cantor*); Sumatra (*Lesson*); Borneo (*Wallace*).

Additional references.—*Bucco mystacophanus*: Lesson (1839), Rev. Zool. p. 137; Cuvier (1829), Règn. An. p. 457; Hartlaub (1841), Rev. Zool. p. 337. *Bucco quadricolor*: Hartlaub (1841), Rev. Zool. p. 337; Blyth (1846), Journ. As. Soc. p. 14. *Megalaima mystacophanos*: Moore (1859), Proc. Zool. Soc. p. 454; Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 18; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 7. *Megalæma mystacophanes*: Sclater (1863), Proc. Zool. Soc. p. 210.

Some of the specimens in the British Museum are labelled as coming from Java; but this is probably a mistake; for the species inhabiting that island are all peculiar to it, and Mr. A. R. Wallace observed that the common species of Sumatra and Malacca were altogether wanting there.

The Gaudy Barbet is perhaps the most brilliantly coloured of all this showy family; the depth and richness of the colouring in the adult bird are especially remarkable. Its habits are similar to those of its congeners. The young bird is entirely green, the bright colours being gradually assumed.

There is a very good figure of this bird in the 'Planches Coloriées' of Temminck to accompany the original description.

Our Plate and description are taken from specimens in our own collection; the former represents an adult bird in full plumage, from Sumatra, and a young bird, in the transition state, from Penang, being the specimen which established the distinctness of *M. humei* from this species.

MEGALÆMA JAVENSIS.

MEGALÆMA JAVENSIS.

(THE BLACK-BREASTED JAVAN BARBET.)

Le Barbu kotorea	(1807) Le Vaill.; Barbus, Suppl. p. 42, fig. C.
Bucco javensis	(1820) Horsf.; Trans. Linn. Soc. XIII. p. 181.
„ *tristis*	(1822) Drap.; Dict. Class. d'Hist. Nat. II. p. 195.
„ *kotorea*	(1831) Temm.; Pl. Col. p. 88 (*texte*).
Megalaima javensis	(1842) G. R. Gray; Gen. of B. II p. 429.
Megalœma javensis	(1854) Bonap.; Consp. Volucr. Zyg. p. 12.
Chotorea javensis	(1856) Horsf. & Moore; Cat. of B. II. p. 640.

M. sexibus similibus: viridis: gutture coccineo: fronte pallide sulphureâ.

Hab. in insulâ "Java" dictâ.

Sexes alike; body green; lores scarlet; forehead and head straw-yellow, shading into green at the back of the neck; sides of the face and a superciliary stripe black, tipped with green; a large yellow spot at the base of the lower mandible; the upper plumage rich dark green, the feathers of the nape and sides of the neck being edged with lighter green as in *M. mystacophanus*, giving it a scalloped appearance; chin, throat, and upper breast deep scarlet, below which comes a broad irregular crescent of black, which joins on to the black of the face; under surface bright grass-green; tail underneath greenish blue; the quills brown, the inner web pale yellowish at base, the outer bordered with green, especially on the secondaries, the innermost of which are almost entirely green; rictal bristles strongly developed; bill black; irides dark brown; legs and feet dull olive. Length about 9″·0, wing 4″·1, tail 2″·9.

Hab. Java. East Java (*Wallace*). Temminck also gives Sumatra as a locality; but this is probably an error.

The Black-breasted Barbet is apparently confined to Eastern Java, where it is stated by

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Additional references.—*Bucco javensis*: Hartlaub (1841), Rev. Zool. p. 337. *Megalaima javensis*: Goffin (1863), Mus. Pays-Bas, Bucc. p. 19; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 6.

Horsfield, Kuhl, and Boie to be very common. It is a conspicuous bird, its pale straw-yellow head contrasting strongly with its black throat. It was figured as long ago as 1807 by Le Vaillant; but there is no subsequent plate, and the copies of Le Vaillant's works are now very scarce indeed.

"Its note resembles 'tok-tok-tok-tok,' uttered in loud tones from the tops of the high mountain-trees." (*Bocarmé*, MSS.)

There are specimens in most of the public museums. Our figure is taken from one in our own collection, and represents an adult bird from Java.

MEGALÆMA HUMEI.

MEGALÆMA HUMEI.

(THE VARIEGATED BARBET.)

Megalæma humei . . . . . (1870) Marshall; Ibis, p. 536.
Megalaima mystacophanus . . . . . (1863) Goffin; Cat. Mus. Pays-Bas, Bucc. p. 18 (*partim*).

M. sexibus similibus: viridis: gutture viridi: occipite coccineo.

Hab. in insulâ "Borneo" dictâ.

Sexes alike; body green; lores, a triangular occipital patch, and a small spot on each side of the breast scarlet; forehead greenish yellow, shading into light blue; a line above and below the eye, and a moustachial spot, bright blue; the sides of the occiput and the whole nape and neck very dark green, tipped with crescents of bright shining green; upper back rich dark green; quills brown, the inner webs pale yellowish at base, the exterior webs edged with green, especially the secondaries, the innermost of which are almost entirely green; throat pale green, indistinctly washed with blue, and the feathers yellow-shafted; a pectoral band of light blue; the under surface of the body pale green.

The young bird is green, and the bright colours of the head and neck are gradually assumed. Length about 8″·5, wing 3″·9, tail 2″·7.

Hab. Borneo (*mus. nostr.*).

The Variegated Barbet has been known for a long time, but has always been considered an immature stage of *M. mystacophanus* (Temminck). A few months ago we obtained from Penang an immature bird of the latter, which has convinced us that the present species is distinct, and that in no case could *M. humei* be a stage of *M. mystacophanus*. The chief points on which they were classed together were the green throat and mixture of green with the yellow and blue on the head of *M. humei*, which were considered marks of immaturity which would eventually give place to the scarlet throat and golden-yellow forehead of *M. mystacophanus*; but in evidently mature specimens of the former the scarlet

on the occiput is fully developed, while not a trace of it has appeared on the throat; and, on the other hand, a very immature specimen of the latter has the scarlet strongly developed on the throat, while the occiput is still tinged with green. In size *M. humei* is rather the larger of the two.

The specimens of *M. humei* which we have seen have all come from Borneo, whereas *M. mystacophanus* is found in Penang, Malacca, and Sumatra, as well as Borneo, and very rarely, apparently, in the latter island; for the only skin we have seen from that locality was one brought home by Mr. A. R. Wallace.

The Variegated Barbet is a very handsome bird, and apparently common; it is to be seen in most of the public museums; and our own collection possesses four examples.

The Plate and description are taken from specimens in our own collection; and the former represents an adult and a young bird. It has not been figured previously, as far as we are aware.

MEGALÆMA VERSICOLOR.

MEGALÆMA VERSICOLOR.

(THE BEAUTIFUL BARBET.)

Bucco versicolor	(1822) Raffles, Linn. Trans. xiii., p. 284.
Megalaima versicolor	(1846) G. R. Gray, Gen. of Birds, ii., p. 429.
Megalæma versicolor	(1850) Bonaparte, Consp. Avium, p. 12.
Chotorea versicolor	(1856) Horsf. & Moore, Cat. ii., p. 640.
Bucco rafflesii	(1839) Lesson, Rev. Zool., p. 137.
Megalaima versicolor	(1856) Motl. & Dillw. Nat. Hist. Labuan i., p. 28
Megalaima versicolor	(1863) Goffin, Schleg., Mus. Pays-bas, Buccones, p. 15.
Megalaima versicolor	(1868) G. R. Gr. Cat. Brit. Mus. Capitonidæ, p. 6.
Bucco versicolor	(1846) Blyth, J. A. Soc. Bengal, xv., p. 13.
Barbu bigarre	(1838) Temm, Recueil des Ois, Pl. 309.

Takoo, natives of Sumatra . . .	. (Raffles).
Takoor, natives of Malacca . . .	. (Eyton).
Panggil Panggil, natives of Labuan .	. (Motley).

M. sexibus similibus, viridis, capite versicolore; fronte, pileo toto nuchâque læte coccinneis, loribus et regione paroticâ nigris.

Hab. In regione Malayanâ.

Description. Sexes alike; body green; head ornamented with bright colours, head, nape, a spot below the eye and one on each side of the lower part of the throat rich red; cheek orange, with a blue spot at the base of the lower mandible; a broad streak over the eye purplish blue, the throat and upper breast cobalt, basal half of the feathers black; quills brown; the inner web pale yellowish at the base; the exterior edge of the primaries edged with green, the secondaries more broadly edged, especially the innermost, which are almost entirely green. Tail underneath blueish green; bill and feet black, rictal bristles very strongly developed.

Hab. Sumatra (*Wallace*), Banjermassing (*Motley*), Borneo (*Schwaner*), Siam (*Temminck*), Malacca, Penang (*Cantor*), Bangka (*Schlegel*), Java (*British Museum*).

This gaudily plumaged bird is common enough in museums and collections, but we

are unable to find any record of its habits; this is probably owing to the difficulty European travellers experience in endeavouring to penetrate the countries in which it occurs. To judge from what is known of its congeners, it would most likely frequent dense forests and keep to the tops of the highest trees, and in such situations, in the tropical climate of Indo-Malayana, the feverish miasma would be an even more imminent source of danger to the traveller than the enmity of the savage inhabitants. The natives themselves, however, bring in the skins of the brighter coloured birds to sell to the dealers, and in this manner they find their way into our European collections. Mr. A. R. Wallace, who resided for some time in Sumatra, unfortunately has recorded no observations of it. He has but one specimen in his collection, an adult male, and remarks that though very common, he passed it over as an unmistakeable bird well known to science; this loss of a valuable opportunity is much to be regretted, as such admirable collectors as Mr. Wallace do not often visit the island.

The sexes show no difference in plumage. In the young bird the colours are duller and the bill is whitish at the base of the lower mandible. The specimens from Java seem to be a little larger than those from Borneo and Sumatra.

The dimensions taken from skins in the British Museum, and our own collection, are, wing from 4.1 to 4.35, tail from 2.7 to 3., bill 1.35 to 1.4, tarsus, a little over an inch.

The specimen figured is life size, and is taken from a Malacca skin in our possession; it is an adult in full plumage. Owing to the conspicuous colouring the synonomy of this species is unusually clear and satisfactory.

MEGALÆMA CORVINA

MEGALÆMA CORVINA.

(THE CROW-BILLED BARBET.)

Bucco corvinus	(1820) Reinw.; Batav. Cour. p. .
Megalaima corvina	(1840) G. R. Gray; Gen. of Birds, II. p. 429.
Megalæma corvina	(1854) Bonap.; Consp. Vol. Zyg. p. 12.

M. sexibus similibus: major: viridis: gutture brunneo, occipite brunneo aurantiaco suffuso.

Hab. in insulâ "Java" dictâ.

Sexes alike; body green, of large size; lores dark brown, forehead light earthy-brown with a yellow metallic tinge (in some specimens the light colour extends back over the top of the head); head and neck dark earthy-brown, each feather edged with yellow, more so on the upper back and shoulders, where the yellow, brown, and green are mixed together and form an irregular collar with a golden tinge; the upper plumage is rich dark green, quills brown, inner webs pale yellowish at base, the exterior web of the primaries edged with green, the secondaries more broadly edged, the innermost ones being almost entirely green; sides of the face, chin, throat, and upper breast dark umber-brown with a golden metallic tinge; under surface brilliant grass-green; iris reddish olive; bill and feet black, bill lead-colour at base (*Wallace*). Length 12″.

Hab. West Java only (*Wallace*).

The Crow-billed Barbet is confined strictly to the island of Java, and appears to replace in the west the Black-breasted Barbet (*M. javensis*), which is peculiar to the eastern part. It is one of the largest species of Barbets, and quite unlike the others in colouring; the golden tinge on the brown of the face, throat, and neck, and the conspicuous absence of blue and scarlet on the head, are the most noticeable points. Goffin has confused this

Additional references.—*Bucco corvinus*: Temminck (1833), Pl. Col. No. 522; Hartlaub (1841), Rev. Zool. p. 337; Lord Walden (1866), P. Z. S. p. 240. *Megalaima corvina*: Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 30; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 12.

species with Hodgson's Lineated Barbet (*M. hodgsoni*)—and hence the extended range which he erroneously ascribes to it: the absence of specimens of the latter bird in the Leyden Museum at the time he wrote is sufficient to account for the mistake.

Temminck also says that it has been confounded with Buffon's 'Grand Barbu" (*M. virens*), and gives Sumatra and Borneo as localities, probably erroneously, as it is not borne out by modern research. He gives the length as 11 inches.

According to Bocarmé's MSS., "This species is found in Java, in the low trees which grow among the thick brushwood, where fruit is abundant: when startled it dashes out of the thicket with loud cries of '*Kouāk-kouāk*.' It lays two white eggs in March, in the trunks of dead trees.

"It is not a timid bird, and hops about leisurely from branch to branch, at the tops of the higher trees; it does not climb, as do the other Barbets, and it has a sluggish and awkward appearance. Its stomach contained berries, and ripe and unripe figs, which it had swallowed whole."

There is a good figure of this bird by Temminck in the 'Planches Coloriées,' but in no other work that we are aware of.

Our Plate and description were taken from an adult specimen from Java in our own collection.

MEGALŒMA FRANKLINII.

MEGALÆMA FRANKLINII.

(THE SILVERED-EARED BARBET.)

Bucco franklinii	(1842) Blyth; Journ. As. Soc. XI. p. 167.
„ *igniceps*	(1844) Hodgs. in J. E. Gray's Zool. Misc. p. 85.
Megalaima franklinii	(1846) G. R. Gray; Gen. of B. II. p. 430.
Cyanops franklinii	(1856) Horsf. & Moore; Cat. of B. II. p. 643.
Ban bāsi	Nepal (*Hodgson*).
Bagh bāsi	Nepal (*Hodgson*).

M. sexibus similibus: viridis: gutture aurantiaco: fronte coccineâ.

Hab. in subregione Himalayanâ orientali.

Sexes alike; body green; lores and forehead scarlet; top of the head and a spot at the base of the lower mandible golden-orange; above the eye and sides of the head and neck black; cheeks, ear-coverts, and throat silvery grey; upper plumage green, the feathers of the back broadly edged with light green; the upper wing-coverts conspicuously washed with blue, particularly on the shoulder; quills brown, inner webs pale yellowish at base; exterior edge of the primaries greenish blue, that of the secondaries darker green, the innermost being entirely green; chin golden-yellow; under surface light grass-green; tail underneath greenish blue; bill dusky above, plumbeous below; irides brown; feet parrot-green. Length 9″·0, wing 3″·75, tail 2″·55.

Hab. North-eastern India. Nepal and Behar (*Hodgson*); Darjeling (*Beavan*); Sikkim (*Bulger*); Tenasserim (*Tickell*).

The Silvered-eared Barbet is confined to the North-eastern Himalayan district, but

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Additional references.—*Bucco franklinii*: Blyth (1846), Journ. As. Soc. p. 13. *Megalaima franklinii*: Gray (1846), Cat. Birds of Nepal (*Hodgson*), p. 114; Goffin (1863), Mus. Pays-Bas, Bucc. p. 20; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 8. *Cyanops franklinii*, Jerdon (1862), Birds of India, no. 196; Beavan (1864), Ibis, p. 412; Bulger (1869), Ibis, p. 157.

appears to be common enough there. Its silvery grey ears, cheeks, and throat, and, above all, the conspicuous blue on the shoulders, are characteristic of this species only. Its colouring is unusually tasteful and ornamental. It is very plentiful in the forests of Sikkim. According to Tickell this species is found from three to four thousand feet above the sea in the Tenasserim hills, never higher or lower; "in the forests of Danna the woods resounded with its cries, resembling '*piouw-piouw.*'"

The following account of the habits and structure of this bird is taken from the MS. memoranda of Mr. Brian Hodgson:—

"The native names for the 'Silvered-eared Barbet' are Ban bāsi, or Bagh bāsi. It inhabits the lower region of Nepal, and always breeds in the lower valleys. It builds in April in holes of trees, and lays four pure white eggs. The young fly in June. It is entirely frugivorous, feeding chiefly on the fruit of the Peepul (*Ficus religiosus*), Bur (*Ficus indicus*), other species of fig-trees, and the guava-tree. It is frequently caged in Nepal. They usually are found in pairs, and are not gregarious. The sexes are alike, both in size and colouring; the female is perhaps a little the lighter in weight. The stomach has the outer coat equal, and of moderate thickness; the inner one softish and subgrooved, and is somewhat muscular and large. The intestines are very capacious, equal throughout, and furnished with two tiny cæca. The irides are pale brown tinged with red. The bill is dusky above, plumbeous below. The feet are green.

	Sex.	Length.	Expanse.	Weight.	Intestines.	Contents of Stomach.
		"	"	oz.	"	
November 26th	♂	....	.....	.....	.....	Green pulpy fruits.
December 1st	♂	9	13·5	3·5	12·5	Pulpy fruits only.
December 1st	♀	9	13	3	12·5	Pulpy fruits only.
June 4th	♂	....	.....	.....	14	Fruit of "*mudh byas*" (whinberry).
April 22nd	♂	....	.....	2·75	14	Pulpy fruits only.
April 22nd	♀	....	.....	2·75	14	Pulpy fruits only.

"The length of the tail is 2·55 inches, and of the wing is 3·75 inches.

"I took a nest belonging to this species, at Fahee Powah, in the month of April. It was in a tree on the outskirts of the forest. The bird had excavated, apparently with its bill, a hole in the centre of a large lateral decayed branch. The orifice was circular, and rather on the lower edge of the side of the branch, and led obliquely downward to the chamber; this latter was retort-shaped, with a highly curved neck and elliptical body; on

the bottom the eggs were deposited with no sort of lining intervening. The total depth of the hole was ten inches, the neck being four and a half. The diameter of the orifice was less than two inches, and of the chamber about three and a quarter. The eggs, two in number, were pure white."

This bird has never been figured in any previous work on ornithology.

The Plate was drawn from a specimen in our own collection, obtained from Darjiling, and represents the full plumage of the adult.

MEGALÆMA FABER

MEGALÆMA FABER.

(THE BLACK-CAPPED BARBET.)

Megalæma faber . . . . . (1870) Swinhoe, Ibis, p. 96 & plate IV. fig. 1.

M. sexibus similibus; viridis; gutture aurantiaco, fronte, nigro.

Hab. In insulâ "Hainan" dictâ.

Sexes alike: body green; whole top of the head black with a bluish green tinge, the feathers stiff shalfted; the occipitals broadly tipped with scarlet, and the side feathers with blue; a spot in front of the eyes scarlet; the ear-coverts and a band across the throat cobalt blue; upper plumage dark green; quills brown, base of the inner webs and the exterior edge of the primaries yellowish white; throat and a spot at the base of the lower mandible golden yellow; a large scarlet spot on the upper breast joining the blue band; the rest of the under surface bright grass green; tail underneath greenish blue: irides deep reddish brown; bill plumbeous black, whitish at the base of the mandibles; rictal bristles strongly developed, black; legs and feet leaden grey, with a greenish tinge; wing 4, tail 2 6-10, tarsi 1½. These measurements are from the dried skin.

Habitat. The island of Hainan (*Swinhoe*).

This bird, which was first discovered by Mr. R. Swinhoe in 1868 in the island of Hainan, is the second new addition he has made to the genus, and is nearly allied to *M. nuchalis* of the island of Formosa.

The following is Mr. Swinhoe's account of this species, and as he is the only Naturalist who has obtained it as yet, we give it in extenso:—

"Like Formosa, Hainan has also its peculiar species of Barbet; and from the almost "identical colouring of the under parts, and the similarity of build and stature in the two "birds, one must necessarily come to the conclusion that the one has been derived from the "other, or that both are of common lineage. From its loud peculiar call, the Hainan "species has earned among the natives of the island the appellation of 'Ironsmith,' whence "I have derived its specific name (the 'Ironsmith,' so called because its voice sounds like "hammering the metal—*Kiung-Shan-Heen-che*). Among the woods of the interior I often "saw this bird either singly or in small parties. It is a stupid heavy species, keeping much "to the upper boughs of umbrageous trees, especially those of the fig group, of which there "are a good many kinds in Hainan. It sits silent among the leaves munching the figs, and "you may be under a tree a long time without knowing that a party of Barbets are over-"head except from the constant falling of berries. On staring up into the tree it was often "difficult to make them out on account of their resemblance in colour to the foliage. When "roused they hop clumsily from twig to twig, sometimes giving utterance to a short faint "note. In flying they hold the head with the heavy bill well up, the body and tail inclining "downwards, while the wings keep on a continued fluttering and propel the bird in a "straight direction."

This bird was figured for the first time in the Ibis for this year. Our plate is taken from a specimen in our collection, which we obtained through the kindness of Mr. Swinhoe, the only gentleman who has brought this species to England. It represents an adult bird, life size.

MEGALÆMA NUCHALIS

MEGALÆMA NUCHALIS.

(THE EMBROIDERED BARBET.)

Megalæma nuchalis . . . . . (1862) Gould, P.Z.S. p. 283.
" " . . . . . (1863) Swinhoe, Ibis, p. 387.
" " . . . . . (1870) Swinhoe, Ibis, p. 97 and plate IV. fig. 2.
" " . . . . . (1864) Gould, B. of Asia, pl. 10.
Megalæma calanchima . . . . . (1863) Goffin, Mus. Pays Bas, Bucc. 94.

NATIVE NAME.

Hoë-Kwa-cheow . . . Swinhoe.

M. sexibus similibus: viridis: gutture aurantiaco: fronte nitenti viridiscenti-luteo: occipite cyaneo.

Hab. in insulâ "Formosa" dictâ.

Adult. Male. Sexes alike; body green; forehead and top of the head light shining greenish yellow; occiput and sides of the neck blue, the feathers of nape mixed green, blue, and red; a spot in front of the eye, and some of the feathers on the upper back, scarlet; quills brown, inner web at base and exterior edge of the primaries yellowish white; rest of the upper plumage rich dark green; cheeks and ear-coverts bright blue; chin, throat, and a spot at the base of the lower mandible golden yellow, followed by a broad band of blue joining the blue of the cheeks; below this is a large vermillion spot on the upper breast; under surface bright grass green; bill horny black, shading into sulphur yellow at the base of both mandibles; rictal bristles strongly developed; irides reddish brown; legs and feet olive black; length $7\frac{1}{2}$, bill $1\frac{1}{4}$, wing $4\frac{1}{8}$, tail $4\frac{3}{4}$, tarsus 1″.

Young. According to Swinhoe, the young bird has no tinge of blue on the wings; the back is duller green and devoid of the yellow wash, and the five-tipped feathers at the

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Additional references.—*Megalæma nuchalis:* Swinhoe, P. Z. S. p. 333 (1863); Gould, Ibis, p. 387 (1863), et Ibis, p. 220, note (1865); Swinhoe, Ibis, p. 545 (1865); Swinhoe, Ibis, pp. 296—401 (1866).

back of the neck are wanting ; the yellow of the throat is paler, and the large bright red spot of the lower neck is represented only by a few light specks.

Hab. The island of Formosa. (*Swinhoe*).

This beautiful species was first obtained by Mr. R. Swinhoe in Formosa, and from his account appears to be the only *Megalæma* found on that island and to be quite peculiar to it. He sent his first specimens to Mr. Gould, who named it and described it in the Proceedings of the Zoological Society (*l.c.*), an extract from which we here give with Mr. Swinhoe's account of its habits:—

"The only species of this genus known to inhabit South China is the great *M. virens*, "which is also an abundant bird in some parts of India. In Formosa it is represented by "this smaller but more lovely species, the 'Embroidered bird' of the Chinese colonists. "This Barbet is a true forest bird frequenting the higher mountains of the interior, where "it may be met with in great abundance though generally scattered about the woods singly "or in pairs. It affects the highest branches of the large trees, sitting solitary and often "motionless for hours together. Its note is loud and discordant, the bird often making its "presence known by its voice when one would otherwise pass it by unnoticed from the "resemblance of its plumage to the general foliage. When seen flying from tree to tree it "looks like a cross between an oriole and a parrot, if such a thing can be imagined. It "feeds on berries and occasionally on insects, and also I am told on small birds."

This bird has been beautifully figured by Mr. Gould in his "Birds of Asia" (*l.c.*), and also in the Ibis of 1870. Our plate is taken from a specimen in our collection obtained from Mr. Swinhoe.

MEGALÆMA OORTI.

MEGALÆMA OORTI.

(THE SUMATRAN EMBROIDERED BARBET.)

Bucco oorti	(1835) Müller; Tijd. Nat. Gesch. II. p. 341, t. 8, f. 4.
,, ,, ...	(1841) Hartlaub; Rev. Zool. p. 337.
Megalaima oorti	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
,, ,, ...	(1863) Goffin; Cat. Mus. Pays Bas, Bucc. p. 21.
,, ,, ...	(1869) G. R. Gray; Cat. Brit. Mus. Capit. p. 7.
Megalæma oorti	(1854) Bp.; Consp. Vol. Zyg. p. 12.

M. viridis: sexibus similibus: gutture aurantiaco: fronte pallide sulphureo: occipite sanguineo.

Hab. in insula "Sumatra" dicta.

Sexes alike; body green; the lores, a spot in front of each eye, and a large patch on the occiput, scarlet; the forehead and top of the head, pale sulphur yellow; a broad superciliary streak, and a small spot on the cheek black; the sides of the occiput, checks, and ear-coverts, bright verditer blue; the upper plumage dark green, some of the feathers being edged with lighter green; the quills brown, the inner webs at the base, as well as the exterior edge of the primaries, pale yellowish white. The chin, throat, and spot at the base of the lower mandible, deep golden yellow; a complete gorget of light blue borders the yellow, and below that is a scarlet spot on each side of the breast. The under surface is bright grass-green; the tail underneath is greenish blue. The rictal bristles strongly developed; the bill is black, pale horny at the base of the lower mandible; irides clear brown; legs and feet, dirty greenish yellow. Wing 3·25, tail 2·6 inches (from dried skin). The young bird has the back, wings, and extremity of the tail marked with blackish cross bars. The yellow on the top of the head and throat is pale, the blue gorget and the scarlet spots on the occiput and breast are wanting, both colours being replaced by green.

Hab. Sumatra (*Müller*).

This very lovely Barbet is closely allied to *M. nuchalis*, the chief feature which distinguishes it being the scarlet occipital spot. It is found exclusively in Sumatra, and must be as rare as it is beautiful, for no traveller has recorded its occurrence since 1835 when Müller discovered it, while even Mr. A. R. Wallace does not appear to have succeeded in obtaining a specimen. Müller found it in the dense forests of the South West Coast of the island, and the three specimens brought home by him are the only ones we know of in Europe.

With the original description a figure of the head was given, and with this exception no other illustration of this Barbet exists. Our plate is taken from one of Müller's specimens belonging to the Leiden Museum, and very kindly lent to us by Professor Schlegel, to whom we are indebted for the loan of several other unique specimens.

MEGALÆMA ARMILLARIS.

MEGALÆMA ARMILLARIS.

(THE ORANGE-BANDED BARBET.)

Bucco armillaris	(1824) Temm.; Pl. Col. pl. 89. fig. 1.
,, ,, ...	(1829) Cuvier; Règn. An. p. 457.
,, ,, ...	(1841) Hartlaub; Rev. Zool. p. 337.
,, ,, ...	(1846) Blyth; J. A. S. p. 14.
Megalaima armillaris	(1846) Gray; Gen. of B. II. p. 429.
,, ,, ...	(1863) Goffin; Mus. Pays-Bas, Bucc. p. 22.
,, ,, ...	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 7.

M. sexibus similibus: viridis: gutture viridi: occipite cæruleo, vittâ pectorali aurantiacâ.

Hab. in insulâ "Java" dictâ.

Sexes alike; body green; lores black; forehead, sinciput, sides of the occiput, and a distinctly marked gorget coming up the sides of the neck rich golden-orange; the centre of the occiput and nape bright marine-blue; quills brown, inner webs pale yellowish at the base, exterior webs edged with green, more broadly on the secondaries, the innermost of which are almost entirely green; tail underneath greenish blue; bill black, the rictal bristles strongly developed; irides brown; legs and feet olive-brown. Wing 3″·5, tail 2″·3.

Hab. W. Java (*Wallace*).

According to Temminck, on the authority of S. Müller, the Orange-banded Barbet is exceedingly common in Java, in the depth of the mountain-forests, about 5000 feet above the sea-level. Mr. A. R. Wallace mentions that it is confined to the western portion of the island.

The following account of its habits is taken from the MS. of Bocarmé:—

"A fig-tree, covered with the small round yellow figs, is a great attraction to this species of Barbet; and a collector by taking up a concealed position near one of these trees may kill as many as he wishes. They are principally found in the thick woods between

2000 and 4000 feet above the sea (Müller gives 5000 feet). Among the many thousands of curious objects of natural history which abound in these forests must be reckoned this beautiful Barbet, which occurs in very great numbers. Its note is loud, and easily recognized; it utters in monotonous tones a sound resembling '*kroukrouk kroukrouk*,' which rings through the solitude of the deep forest glades. I have found the stomach of the same bird containing both spiders and coffee-berries."

The young bird is entirely green. The adult is somewhat similar in size and appearance to *M. henricii*, of Sumatra, but may be distinguished by its green throat and the orange band on the breast.

The Plate and description were taken from an adult specimen in our own collection.

MEGALÆMA ASIATICA.

MEGALÆMA ASIATICA.

(THE BLUE-FACED BARBET.)

Blue-cheeked Curucui . . .	(1790) Latham; Gen. Syn. Suppl. p. 93.
Trogon asiaticus, ...	(1790) Latham; Ind. Orn. I. p. 201.
Le Barbu à gorge bleu . . .	(1806) Le Vaill.; Barbus, p. 57, t. 21 and 22.
Bucco cæruleus	(1806) Dumont; Dict. Sci. Nat. IV. p. 48.
Le cabezon à gorge bleu . . .	(1816) Vieillot; N. Dict. d'Hist. Nat. p. 498.
Capito cyanicollis	(1816) Vieillot; N. Dict. d'Hist. Nat. p. 498.
Bucco cyanops	(1817) Cuvier; Regne. An. I. p. 428.
,, *cyanocollis*	(1831) Temm.; Pl. Col. Texte.
,, *cæruleigula*	(1844) Hodgson; Gray, Zool. Misc. p. 85.
Megalaima asiatica . . .	(1846) Gray; Cat. Birds Nepal, p. 114.
Bucco asiatica	(1847) Blyth; Ann. Nat. Hist. p. 385.
Megalæma asiatica . . .	(1850) Bonaparte; Consp. Av. p. 143.
Cyanops asiatica	(1854) id.; Consp. Vol. Zyg. p. 12.
,, *asiaticus*	(1867) Blyth; Ibis, p. 297.
Pogonias cyanogenius . . .	Merrem.
Bucco voigtii	(1852) v. Kreling. Jahr. Naturf. Gesellsch. Emden. p. 20, No. 8.
Burra Bussunth Bairi . . .	Bengal (Hamilton).
Burra Benebo	Ditto (Sundevall).
Bussunth Corul	Sylhet (Hamilton).
Coome	Ditto (ditto).
Suttra	of the Plains (Tickell).
Hoop khalung	Arracan (Phayre).
Rooturki	Nepal (Hodgson).
Bussuntha	Ditto (ditto).

M. sexibus similibus: viridis: gutture cyaneo: fronte rubro.

Additional references.—*Bucco asiaticus:* Hartlaub (1841), Rev. Zool. p. 337; Blyth (1846), J. A. S. B., XV. p. 13. *Bucco cæruleus*: Hartlaub (1841), Rev. Zool. p. 337. *Bucco asiaticus:* Tickell (1848), J. A. S. B., XVII. p. 298. *Bucco cyanops:* Cuv. (1829), Regn. An. p. 457; Mc.Clelland (1839), P. Z. S. p. 165; Pearson (1841), J. A. S. B. X. p. 655. *Bucco cyanicollis:* (1841) Hartlaub, Rev. Zool. p. 337; Sundevall (1846), Ann. Nat. Hist. p. 398. *Megalaima asiatica:* Gray (1846), Gen. of Birds, II. p. 429; Goffin (1863), Cat. Mus. Pays Bas, Buccones, p. 16; Tytler (1854), Ann. Nat. Hist. XIII n.s. p. 367; G. R. Gray (1868), Cat. Brit. Mus. Capitonidæ, p. 8. *Cyanops asiatica:* Jerdon (1862), Birds of India, I. p. 313; Horsf. and Moore (1856), Cat. Mus. E. I. C. p. 641; Beavan (1865), Ibis, p. 412; id. (1865), P. Z. S. p. 691. *Megalæma asiatica:* Blyth (1849), Cat. Mus. A. S. Beng. p. 67; Gould (1862), P. Z. S. p. 283; Sclater (1866), P. Z. S. p. 418; Tytler (1868), Ibis, p. 201; Sclater (1870), Ibis, p. 178.

Hab. in sub-regione Indo-Burmanicâ.

Sexes alike; body green, lores, forehead, occiput, nape, and a spot on each side of the upper breast, scarlet; a broad band of black across the top of the head, from eye to eye, shading into pale yellow in front. The rest of the upper plumage, dark green; the quills brown, pale yellowish at the base of their inner webs; the exterior web of the primaries edged with green, the secondaries more broadly edged, the innermost being almost entirely green. The sides of the face, a superciliary eye-streak, the entire throat and upper breast, verditer blue. The rest of the under surface light grass green. The under surface of the tail, greenish blue.

The bill is greenish horny, darker above; the legs and feet obscure blue green, and the irides are brown. Length 9·5, expanse 14″, wing 4·5 inches. The young bird has the plumage generally duller, and the bright colours of the head and neck are suffused with green.

Hab. The Indo-Burman sub-region, having been found to the westward as far as the valley of the Jumna, and to the eastward extending into Arracan. It was also procured during the recent Bhamo Expedition by Dr. Anderson. Arracan (*Phayre*), Sylhet (*Blyth*), Orissa (*Pearson*), Bengal (*Blyth*), Barrackpoor, Manbhoom (*Beavan*), Nepal (*Hodgson*), Valley of the Jumna (*Tytler*, *Marshall*).

M. asiatica is a well known bird and formed the type of Bonaparte's genus *Cyanops*. Its most peculiar feature is a slight upward tendency of the commissure which gives it a perky appearance. It has received no fewer than seven different specific names, of which that given by Latham in 1790, has the priority. In colouring it has less of that staring mixture of gaudy patchwork on the head and neck which is characteristic of this group, and its red cap with the neat black band across, and verditer throat and face, are the only ornamental parts of its plumage. There is no very closely allied species with which it might be confounded, and notwithstanding the multiplicity of the names there is no difficulty in referring them all to the same species. Le Vaillant is mistaken in supposing that the sexes differ in plumage. The female that he describes must have been an immature bird.

The following notes have been taken from Mr. B. H. Hodgson's manuscript observations on the ornithology of Nepal, which comprise the most carefully and exhaustively collected mass of information on the birds to which they refer that we have ever seen. If all field

collectors would leave as much on record in proportion as Mr. Hodgson has done, the science of ornithology would receive an additional impulse, and fresh light be cast on the problems at present so perplexing, for it is those naturalists who have the opportunities of field collecting, who are responsible for the comparative ignorance which exists as to the soft anatomy of birds.

"The Blue-faced Barbet, "says Mr. Hodgson," is found in the wooded valleys of the "lower region of Nepal, that is from the Terai to about 4,000 feet above the level of the sea. "It builds in holes in trees, and lays pure white eggs. The sexes are similar in colouring, "but the female is rather the smaller bird. The stomach is of medial subequal thickness, and "rather muscular; the outer coat of moderate thickness; the inner coat soft and smooth "in the young bird, tough and grooved in the adult. The intestines are very capacious "and subequal throughout, and there are no cæca. The tongue is cartilaginous, the tip "bifid and well forked, with the sides entire. The orbits are nude. The tail is feeble, and "consists of ten feathers. There is no membrane over the nostrils. The soles of the feet "are full and balled, not flat. The specimens shot in October and November, were in full "moult."

The annexed table of dimensions is also almost entirely taken from the same source, the few exceptions being observations of our own. It will be seen from it that of this species at least, fruit is the favorite food, and that insects are only resorted to when the former is scarce; for out of the long series examined, extending over all seasons of the year, only in one case insects were found in the stomach, and that was during May, a month in which berries are particularly scarce in the mountains. It is curious also that no buds were found in any of them, for they are a favorite food with many of the *Megalæminæ*.

Date.	Sex.	Length.	Expanse.	Weight.	Intest.	Contents of Stomach.
June 30th.	..	9·25	13·5	3 oz.	10″	Pulpy stony berries only.
Nov. 1st.	..	9·5	14	..	..	Pulpy berries only.
Jan. 29.	..	9·5	13·5	3·5 oz.	12″	Ditto ditto.
„ 1st.	♂	9·5	14″	3·5 oz.	13.″5	Pulpy fruits.
Dec. 10th.	..	..	..	..	..	Full of berries.
July 4th.	♂	9·75	13·5	3·75 oz.	9″	
Sept. 2nd.	..	8·75	13·5	..	13′′	Pulpy berries only.
June 1st.	♂	9·25	13·25	..	..	Ditto ditto.
„ 1st.	♂	10	14	..	..	Ditto ditto.
May 14th.	♀	9·75	14	3 oz.	13″	Do. and some hard insects
June 1st.	♂	..	..	..	..	Two more specimens contained pulpy berries only.
April 4th.	..	..	..	..	..	Large pulpy fruits.
July 4th.	♀	9·5	14	3·25 oz.	..	
June 22nd.	♂	9·75	14·25	..	..	
„ 1st.	♀	..	..	..	..	Pulpy berries only.

The Blue-faced Barbet is common at the foot of the Himalayas in the wooded valleys, but does not occur in the plains below, nor even in the level parts of the "Doons," or tracts of country which separate the Himalayas from the Sewalik range. It is essentially a forest-loving bird and keeps to the tops of the trees. Though found in large numbers in certain localities, they cannot be called gregarious birds. They are tolerably easy of approach. During the hot hours of the day, the Barbets usually sit motionless on the topmost boughs concealed among the foliage, which corresponds so nearly in hue to the general colour of their plumage, that it is difficult to detect them, unless their presence is betrayed, as it usually is, by their sonorous cry, resembling the syllables "*rok-a-roj*," which they utter from time to time. The note is loud and startling, but musical, and well in harmony with the wild nature of the surrounding scenery.

These Barbets seem to have a peculiarly local distribution, especially at the western extremity of their range. They are common along the valleys of the Jumna and its affluents, where the former emerges from the mountains, but Col. Tytler, in his diary of a march from Mussoorrie to Simla, mentions that this was the only place where he found them, and in this our observations agree with his. The gorge of the Jumna and the lower ranges of the Kumaon hills, are the only localities from which we have ourselves obtained it. We found them in great numbers at the picturesque village of Kalsi, on the road from Saharunpoor to Deobund and Chukrata. The village is built upon a small plateau, on a low cliff overhanging the Umlawa, a rocky mountain torrent, about two miles above its junction with the Jumna, and quite surrounded by lofty mountains, the windings of the valley shutting out the view of the open country only three miles distant. The sides of the mountains there are clothed with dense forests of trees, brushwood and flowering shrubs, the resort of birds more numerous and more varied than in any other spot we have visited, and a most charming and attractive place to the lover of nature. An extensive grove of wide spreading mango trees several hundreds of years old, stretches along two sides of the village, and borders the little extent of level grass land which serves as an encamping ground for the mountaineers, who bring their scanty merchandize from the villages scattered along the Umlawa Pass to exchange with the wealthier inhabitants of the plains. The wood of the mango trees is soft, as well as the shade refreshing, especially in the old and partially decaying boughs, and the facility this affords for excavating the hollows for their nests, and the concealment offered by the dense and evergreen foliage, makes groves of this description a favorite place of resort for Barbets, as well as for weary travellers escaping from the noonday sun.

In the Kalsi Grove the Blue-faced Barbets breed freely. Several of their nests were

discovered by an active huntsman of ours, but unfortunately, not at the breeding time, and illness prevented us from visiting them subsequently, so that we never obtained their eggs. The position selected, he informed us, for the entrance, was on the under side of a bough about fifteen inches in girth near the top of the tree. The hole was circular, and about ten inches in depth.

We are indebted to Captain Bailey R.E., who was for a long time encamped at this place, for a number of skins of this, as well as many other birds, all carefully labelled with colours and dimensions, and not being a collector himself, the amount of labour and trouble he took with them was the more gratifying. His observations accord well with those given by Mr. B. H. Hodgson, and only those who have tried it, can know the strength of purpose it requires to sit down and carefully ticket all the birds after a successful, though fatiguing days shooting, or appreciate the loathing of ornithology that fills the mind when, with the thermometer at 95°, a ghastly array of dissected stomachs, are brought in for inspection late in the evening, and the nerves have to be braced, and the nose held, while the necessary particulars are being noted. It is then, indeed, that the dark side of the pursuit of science is discovered, and the true metal of the naturalist tested.

Captain Tickell's often quoted account of the nest of this species is, we are convinced, altogether erroneous. No bird with any analogy to the Barbets has been known to build a nest at all, much less to make a hemispherical one of grass with the blossoms plastered on outside. The account sounds more like that of the nest of a *Centropus* but the dimensions are too small.

Figures of this bird have been given in Le Vaillants "Barbus" (*l.c.*) and in Vieillot's "Galerie des Oiseaux," t. 35, but in no later work that we are aware of. Our plate is taken from specimens obtained by ourselves at Kalsi, and now in our own collection ; it represents a male and female and nest ; the position of the latter is erroneous, as the entrance should be on the under side of the bough.

J. G. Keulemans del. & lith.

MEGALÆMA FLAVIFRONS.

MEGALÆMA FLAVIFRONS.

(GOLDEN-FRONTED BARBET).

Le Barbut à front d'or	(1806) Levaill. Barbus, pl. 55.
Bucco flavifrons	(1817) Cuv. Regne Anim. I, p. 428.
Cyanops flavifrons	(1857) Blyth, Ibis, p. 297.
Bucco aurifrons	(1831) Temm. Pl. Col. texte.

M. viridis: fronte et vittâ ad basin mandibulæ inferioris, aureis: gutture, regione paroticâ et superciliis læte cyaneis.

Hab. in insula Ceylonensi.

Forehead and a spot at the base of the lower mandible bright golden yellow ; head and sides of the neck bright green, the shafts of the feathers yellowish white, giving a striped appearance; the rest of the upper surface of the body bright grass green, blueish on the wing-coverts ; the upper tail-coverts obscurely margined with brighter green ; quills brown, yellow at the base of the inner web, the outer web, especially of the secondaries broadly margined with grass green ; tail deep green above, blueish beneath; ear-coverts, eyebrow, and throat bright verditer blue ; rest of the under surface of the body bright green, lighter on the breast, the feathers of which are transversely scallopped with darker green; bill brownish black, paler at the base of the lower mandible. Total length 9 inches, of wing 4·0, tail 2·75, tarsus 1·0.

Hab. Ceylon.

Megalæma flavifrons is apparently peculiar to the island of Ceylon, where it is common in suitable localities. Like the allied species of Continental India, *M. asiatica*

Additional references.—*Megalæma flavifrons*, Bonap. Consp. Gen. Av. I, p. 143 (1850); Blyth, Journ. As. Soc. Beng. 1852, p. 179 ; Tenn. Ceylon, pp. 178—81 ; Goff. in Schl. Mus. Pays Bas, Buccones, p. 23 (1862) ; Blyth, Ibis, 1866, p. 227, et Ibis, 1867, p. 297 ; Gray, Cat. Capit. Brit. Mus. p. 8 (1868).

and *M. franklinii*, it is confined to the hilly districts, and in them to the more wooded parts. Its voice is loud and sonorous. Nothing has as yet been recorded of its breeding habits so far as we know.

In coloration there is no sufficiently nearly allied species to cause any difficulty in its identification. The scalloped appearance of the breast and the light centres to the feathers of the nape give it some slight resemblance to the green group of the genus *Megalæma*, while the brilliant colouring of the head and face clearly separates it from them.

The plate is drawn from a specimen in Lord Walden's collection, which was kindly lent to us for the pnrpose of our work, and represents an adult male in full plumage, obtained in Ceylon by Mr. S. Chapman.

MEGALÆMA HENRICII. 1 adult. 2 ju.

MEGALÆMA HENRICII.

(HENRICI'S BARBET.)

Bucco henrici	(1832) Boie, Briefe Gesch. aus Ost, p. 15.
Bucco henricii	(1833) Temminck, Pl. Col. 524.
Bucco malaccensis	(1842) Hartl. Rev. de Zool., p. 337.
Megalaima oorti	(1842) G. R. Gray, Gen. of Birds II, p. 429.
Megalaima malaccensis . . .	(1842) „ „ „ „
Megalæma quadricolor	(1854) Bonaparte, Aten. Ital., 1854, p. 12.
Megalæma malaccensis	(1854) „ „ „ „ 12.
Cyanops henrici	(1856) Horsf. & Moore, Cat. of B. ii.. p. 643.
Megalaima armillaris	(1849) Blyth, Cat. birds, Mus. A. S., Bengal, p. 67.
Bucco rufitorques	. . Peale.
Megalaima henrici	(1863) Goff. Schleg, Mus. Pays-bas, Buccones p. 21.
Megalæma henrici	(1868) G. R. Gr, Cat. Brit. Mus. Capit., p.7.

M. sexibus similibus, viridis; capite versicolore, loribusnigris, fronte aurantiaco, occipite cœruleo scapularibus coccineo suffusis, gutture pallide cyaneo.

Hab. In regione Indo-Malayanâ.

Description. Adult. Body green, lighter below; lores, and a spot in front and behind the eye, black; occiput and nape, azure blue, the base of the feathers green, showing least in the fully adult bird; forehead, sinciput, and sides of the head and nape, bordering the blue, golden orange; an irregular collar on the shoulders, and a spot on each side of the neck (wanting in some specimens), bright red; throat verditer blue; tail underneath greenish blue.

Bill black. Irides golden yellow (*Schlegel*); legs and feet black.

Hab. South West Coast of Sumatra (*Henrici*); Malacca (*Wallace*).

This bird was first brought to Europe by Colonel Henrici, after whom it was named by Temminck in his 'Recueil des Oiseaux;' but little is known of its habits. Mr. Wallace, the celebrated Malayan traveller, brought home a single male specimen from Malacca, and

remarks that it was rather a rare bird there. A fair proportion of skins, however, are to be found among the dealers' collection in Singapoor, so that it is probably common enough in the forests of the interior. It closely resembles *M. armillaris* of Java, differing chiefly in the colour of the throat, which is green in the latter bird.

The following are the average dimensions taken from dry skins :—Wing, 3·5 to 3·7 ; tail, 2·5 ; bill at front equal to tarsus 1 inch.

The plate is drawn from specimens in our own collection, received from Singapoor, and represents an adult and a young bird.

MEGALÆMA AUSTRALIS ad & juv

MEGALÆMA AUSTRALIS.

(THE BLACK-BANDED JAVAN BARBET.)

Bucco australis	(1820)	Horsf. Trans. Linn. Soc. XIII. p. 101.
,, *cyanocephalus*	(1820)	Reinwardt, Bataviasche Courant.
,, *gularis*	(1829)	Cuv. Regn. Anim. p. 457.
,, ,,	(1823)	Temm. Pl. Col. pl. 89, fig. 2.
,, *australis*	(1822)	Lath. Hist. of B. III. p. 230.
,, *gularis*	(1841)	Hartl. Rev. Zool. p. 337.
Megalaima australis	(1846)	G. R. Gray, Gen. of B. II p. 429.
Bucco australis	(1847)	Blyth, J. A. S. XVI. p. 466.
Megalaima australis	(1854)	Bonap. Consp. Av. p. 143.
Xantholæma ,,	(1856)	Horsf. and Moore, Cat. of B. p. 648.
Megalaima ,,	(1860)	Gray, P. Z. S. p. 358.
,, ,,	(1863)	Goffin, Mus. Pays Bas, Bucc. p. 29.
,, ,,	(1868)	G. R. Gr. Cat. of B. Brit. Museum, Capit. p 11

The Austral Barbet . . . . Latham.

NATIVE NAME.

Trung-Tung . Java . *(Horsfield).*

M. sexibus similibus: viridis: gutture cæruleo: fronte cæruleo: genis sulphureis.

Hab. in insulis "Java et Banda" dictis.

Adult. Sexes alike; body green; lores, forehead, top of the head and throat dull blue; an oval spot below the eye bright sulphur-yellow; upper plumage dark green; quills brown, pale yellowish at the base of the inner webs; a spot at the base of the lower mandible and a broad gorget deep black, the latter edged with golden yellow; under surface light green; tail underneath greenish blue; rictal bristles extending beyond the tip of the bill, which is black; the iris brown; legs and feet olive brown; length about 6″, wing about 3″, tail 1·8: the measurements being taken from dry skins.

Juv. The young bird is uniform green, and does not assume the full plumage until after the second moult. The base of the lower mandible is pale yellowish.

Habitat. Java (*Reinwardt*), Banda (*Wallace*).

This species is easily distinguishable from all the other members of the genus *Megalæma*, except *M. duvaucelli*, by its diminutive size and the great length and fineness of its rictal bristles, which frequently extend an inch beyond the tip of the bill. From *M. duvaucellii* it may be at once known by its conspicuous yellow cheek-spot, which is crimson in that bird.

These two species have been associated with the genus *Xantholæma* by some authors, but although they are not the same diminutive size do not resemble the latter in form. Their bodies are more slender and the bill is compressed and sharp at the tip; while the chief characteristics of a *Xantholæma* are its short stout bill much blunted at the tip, and the generally squat appearance of the whole bird.

After glancing through the long list of authors mentioned at the head of this paper who have noticed this species in their works, one might naturally suppose that some information concerning its habits, etc., would have been recorded, but unfortunately such is not the case, for the only mention made of this bird is the following note by Temminck :—

"This new species was named by Reinwardt, who was the first to send it, but "unaccompanied by any notes on its habits and customs. It is exceedingly common in "Java ; I received more than fifty specimens, all in a very similar state of plumage."

From what we know of the similarity of habit, food, and nidification of this group, we may safely infer that it in no ways differs from its congeners in these points.

It has only as yet been obtained from Java and Banda, but as there are several islands intervening between the two above mentioned it may probably occur in some of them.

It was figured by Temminck in his "Planches Coloriées." The accompanying plate is taken from three specimens from Java in our collection.

1. 2. MEGALÆMA DUVAUCELII
3. ——————— CYANOTIS.

MEGALÆMA DUVAUCELII.

(THE SCARLET-EARED BARBET.)

Bucco duvaucelii	(1831) Lesson; Traité d'Orn. p. 164.
„ *frontalis*	(1832) Temm.; Pl. Col. 536. f. 1.
„ *gutturalis*	(1832) Boie; Briefe aus Ost-Ind. no. 15.
„ *trimaculatus*.	(1832) J. E. Gray; Zool. Misc. I. p. 3, pl. 3.
„ *australis*	(1820) Raffles; Trans. Linn. Soc. XIII. p. 285 (nec Horsf.).
Megalaima trimaculata	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
„ *duvaucelii*	(1859) Moore; P. Z. S. p. 455.

Tanda or *Tanhak* of the Malays (*Cantor*).

M. sexibus similibus: minima: viridis: gutture cyaneo: fronte nigrâ: regione paroticâ coccineâ.

Hab. in subregione Indo-Malayanâ.

Sexes alike; body green; forehead and top of the head black, becoming bluish towards the nape; a stripe behind the eye running down the neck, one large one at the base of the upper mandible, and one on each side of the throat scarlet; occiput and nape green, a little paler than the back; upper plumage dark green; quills brown, exterior webs edged with green, inner webs pale yellowish at the base; throat cindery blue, a black band across the upper breast (differing in width according to age); under surface light grass-green; tail underneath bluish green; bill horn-black, whitish at the base of the lower mandible; feet dark horn-brown.

The young bird differs by the absence of all the bright coloration of the head and throat, the entire head being green, with a faint tinge of orange on the forehead, and the cheeks and throat slightly washed with blue.

Hab. Borneo (*Wallace*); Sumatra (*Raffles*); Malayan peninsula (*Cantor*). To the

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Additional references.—*Bucco duvaucelii*: Hartlaub (1841), Rev. Zool. p. 337. *Bucco frontalis*: Lesson (1839), Rev. Zool. p. 137; Hartlaub: (1841), Rev. Zool. p. 337. *Bucco trimaculatus*: Eyton (1839), P. Z. S. p. 105; Hartlaub (1841), Rev. Zool. p. 337; Blyth (1847), Journ. As. Soc. Beng. p. 465. *Bucco australis*: Blyth (1846), Journ. As. Soc. p. 13. *Megalaima duvaucelii*: Goffin (1863), Cat. Mus. Pays Bas, Bucc. p. 28; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 11; Gray (1870), Hand-l. of B. II. p. 174.

north of this, in Tenasserim and Arakan, it is replaced by the next species, *M. cyanotis* of Blyth.

The Scarlet-eared Barbet is the smallest species of *Megalæma*; it has an extraordinary development of the rictal bristles, which are often more than twice the length of the bill. The only two species that at all approach it in size are *M. australis*, which has a yellow spot on the cheek, and *M. cyanotis*, which has blue ear-coverts.

Raffles has erroneously identified this bird with *M. australis* in his catalogue: the latter is not found at all in Sumatra.

Mr. F. Moore, in his catalogue of Dr. Cantor's Malayan collection, speaks of *M. cyanotis* as a variety of this species inhabiting Arakan; and it is this belief in the identity of the two species that is the reason for Arakan and Tenasserim being quoted by many authors as localities for *M. duvaucelii*. The different local coloration between the two species is, however, apparently constant, the scarlet-eared bird being never found in Arakan, where the blue-eared one is common.

Its habits and food are similar to those of the rest of this family.

It has been figured both by Temminck (*l. c.*) and Gray (*l. c.*), and is a very well-known bird.

Our Plate is taken from specimens in our own collection received from Malacca.

MEGALÆMA CYANOTIS.

(THE BLUE-EARED BARBET.)

Bucco cyanotis . . . . . (1847) Blyth; J. A. S. B. XVI. p. 465.
Megalaima cyanotis . . . . . (1849) Blyth; Cat. B. Mus. As. Soc. Beng. p. 68.
Xantholæma cyanotis . . . . . (1870) Hume; Ibis, p. 437.

Nyet-pa-din, Arakan (*Blyth*).

M. rostro ad apicem compresso et acuto: viridis: capite versicolori: fronte nigrâ: regione paroticâ cæruleâ.

Hab. in subregione Indo-sinensi.

Sexes alike; body green; fore part of the crown glossy black, with a slight greenish tinge, hinder part bluish, also slightly glossed with green; a very distinct eyebrow, ear-coverts, and throat bright verditer; fore part of the malar stripe blackish with a tinge of blue; hind part of the latter, as well as a spot below the eye and another above the ear-coverts, scarlet; rest of the body green, glossed with yellow, especially on the sides of the neck and under surface of the body, the lower portion of which is also distinctly washed with blue; quills brown, externally margined with grass-green, which is broader on the secondaries; tail dark blue, tinged with green on the upper surface; bill black; feet horn-brown.

Hab. Arakan (*Phayre*); Tenasserim (*Helfer*); Tipperah (*Irwin*).

This species is very closely allied to *M. duvaucelii*, which it equals in size, but it is nevertheless quite distinct. It may be known from the last-mentioned bird by its bright blue ear-coverts and eyebrow, and represents it in the Indo-Chinese subregion.

Our descriptions and figure are taken from a specimen lent us by Mr. Hume out of his private collection, to which it was presented by Mr. Valentine Irwin, who obtained it in Tipperah.

J G Keulemans del & lith

MEGALÆMA LAGRANDIERI.

MEGALÆMA LAGRANDIERI.

(LAGRANDIÈRE'S BARBET.)

Megalæma lagrandieri . . . . . (1868) Verr.; Nouv. Arch. du Museum, III. p. 88.
„ „ . . . . . (1870) Gray; Hand-l. of B. II. p. 175.

M. rostro ad apicem compresso et acuto: viridis: capite versicolori: crisso rubro.

Hab. in Cochin-Chinâ.

Male.—General colour green, with more or less of a bluish shade on the upper surface of the body; this blue colour is especially more pronounced on the lesser wing-coverts, having more of an olive tone on the lower parts of the body, the middle of the belly being clear blue; head and neck brown, darker above than below; on the forehead a very narrow band of greenish yellow terminated with red, the plumes being directed forward; the next band, which is larger, has all the feathers terminated with red, the plumes of the nape and hind part of the neck having also a darker or lighter shade of this colour, especially towards the base of the latter; ear-coverts washed with blue, traces of which colour are visible on the ends of the feathers of the chin and fore part of the neck, some of the latter being tinged with red towards the extremity; wings blackish, bordered externally with olive-green on the primaries, green only on the secondaries, the inner webs all yellowish white, and the under wing-coverts also of the same colour; tail-feathers coloured like the wing on the upper part, but having a silvery tinge underneath; under tail-coverts blackish at the base and red for the rest of their extent, the latter colour varying in intensity; beak much curved and equal in length to the head, very strong at the base, conspicuously vaulted and rather conical, the upper part blackish but all the rest whitish, furnished with long bristles extending for more than half its length; tarsi rather long, horn-coloured, as also are the nails; wings with the third and fourth quills longest; tail rather long and slightly rounded. Total length 31 centimetres, closed wing 13 centims., tail 6 centims., beak from angle of mouth 5 centims., height of bill at nostrils 1 centim. 8 millims., tarsus 3 centim., length of anterior toe without the nail 3 centims., internal one from cleft 1 centim., posterior toe 2 centims. 4 millims., inner one 1 centim.

Female.—Only differs from the male in having a duller plumage, and in the feathers of the auricular region being bluish white.

Hab. Cochin China (*Lagrandière*).

The original specimens of this Barbet still remain unique in the Paris Museum, and we have been obliged to translate the original description of M. Verreaux. The figure in the Plate has also been drawn from the illustration in the 'Archives,' enlarged to the scale of the other Barbets by Mr. Keulemans.

MEGALAIMA VIRIDIS

MEGALÆMA VIRIDIS.

(THE GREEN BARBET.)

Bucco viridis	(1783) Boddaert; Tabl. des Pl. Enl. p. 53.
Barbu de mahe	(1783) Buffon; Pl. Enl. VII. p. 435.
Capito viridis	(1816) Vieillot; N. Dict. d'Hist. Nat. IV. p. 59.
Le cabezon vert	(1816) Vieillot; N. Dict. d'Hist. Nat. IV. p. 59.
Bucco caniceps	(1832) Sykes; P. Z. S. p. 97, No. 123.
Megalaima viridis	(1846) G. R. Gray; Gen. of Birds II. p. 429.
,, ,, ...	(1847) Jerdon; Ill. Ind. Orn. t. 26.

M. viridis: minor: gutture albescente, haud striato: capite, nuchâque, lætè brunneis.

Hab. in Indiâ meridionali.

Sexes alike; body green; head and neck dark umber brown; the feathers of the upper back finely centred with yellowish white; upper plumage rich dark green; quills brown; inner webs pale yellowish at the base; cheeks and a superciliary eye-streak white; chin, throat, and breast yellowish white, the breast-feathers being laterally edged with brown; under surface pale grass green; tail underneath greenish blue; bill pale horny brown; irides red brown; orbital skin brown; legs plumbeous brown (*Jerdon*); length 8·″, wing 4·″, tail 2·75″ inches (*Jerdon*).

Hab. Southern India; the Malabar Coast up to 14° N.L. (*Jerdon*); the Deccan (*Sykes*).

Additional references.—*Bucco viridis:* Gmelin (1788), S. N. Vol. I. p. 408; Latham (1790), Ind. Orn. I. p. 205; Jerdon (1840), Madr. Journ. Vol. XI. p. 217; Hartlaub (1841), Rev. Zool. p. 337; Cuvier (1829), Regn. An. p. 457; Buff, Pl. Enl. No. 870; Latham (1790), Hist. of Birds, p. 228; Temminck (1832), Pl. Col. texte; Jerdon (1844), Madr. Journ. XIII. pt. 2, p. 140; Blyth (1846), J. A. S. Beng. XV. p. 13. *Megalaima viridis:* Blyth (1849), Cat. Mus. A. S. Beng. p. 67, No. 319; Horsf. & Moore (1856), Cat. Mus. E. I. C. II. p. 639, No. 926; Jerdon (1862), Birds of India, No. 194; Bonaparte (1850), Consp. Av. p. 144; G. R. Gray (1868), Cat. Brit. Mus. Capitonidæ, p. 13.

As regards the above-quoted locality of the Deccan, it is rather a doubtful point whether Col. Sykes is referring to the present bird or to *M. caniceps*, which is found as far south as the Vindhyan hills, from whence the type specimens were procured, and even extends into Malabar. The dimensions he gives are rather large for this bird, though much too small for *M. caniceps*.

The present species of Barbet is the smallest of the green group, and may be distinguished as readily by its colouring as by its size. Its dark brown head and nape, without a trace of paler streaking, distinguish it at once from all except *M. zeylanica*, and with this last the pale albescent throat renders it impossible to confuse it. The nearest approach to it in size is *M. phœostriata*, the most eastern representative of the green group, which has a conspicuous cheek-stripe of bright green, a feature wanting in every other known species, and a striped throat.

Its habits are similar to those of its allies; according to Dr. Jerdon "it inhabits the "Indian peninsula, and is generally found in the woods on the Neilgherries, but also here "and there in the forests of Malabar, chiefly in the higher portions of the ghats. Its note "is hardly so loud as that of its more common congener of the Malabar forests, *M. caniceps*. "Its flight, as indeed is that of all the species, is rapid, direct, and somewhat undulating. "It perches generally on lofty branches of trees; and on a wood being beaten for game, "several of these may be seen winging their way over the tops of the trees to a more "secure spot. I have occasionally heard the cry of a species of this genus by moonlight."

Another writer gives the following account:—"This is the common green Barbet of "the Malabar coast, extending up the Neilgherries, where it is very common, and also in "the Malabar ghats. Its voice is not quite so loud as that of *M. caniceps*, and its flight is "similar. I have frequently heard both these birds calling by moonlight."

According to Sykes only stony fruit was found in the stomachs. We never obtained this bird, and so can give no record of personal observations.

M. viridis is a very well-known bird; it has been figured by Buffon, and also by Dr. Jerdon, in his "Illustrations of Indian Ornithology." Our plate is taken from a specimen in our collection from Malabar, and represents an adult bird in full plumage.

MEGALÆMA HODGSONI.

MEGALÆMA HODGSONI.

(HODGSON'S LINEATED BARBET).

Bucco caniceps	(1844) Hodgs. in Gray's Zool. Misc. p. 85 (*nec Frankl.*).
Megalæma caniceps	(1846) Gray, Cat. Capit. Brit. Mus. p. 114 (*nec Frankl.*).
Bucco lineatus	(1846) Blyth, Journ. As. Soc. Beng. XV, p. 12.
Megalæma lineata	(1849) Blyth, Cat. Birds Mus. As. Soc. Beng. p. 66.
Megalæma Hodgsoni	(1850) Bonap. Consp. Gen. Av. I, p. 144.
Megalæma M'Clellandi	(1856) Horsf. & Moore, Cat. B. Mus. E. I. Co. II, p. 637.

NATIVE NAMES.

Paharia Korul, Bengal (*Jerdon*).
Dang Kaniong pho, Lepcha (*Jerdon*).
Kudurta and *Khotoor*, Nepal (*Hodgson*).
Pho goung, Arracan (*Phayre*).
Po Koung, Burmese (*Tickell*).

M. major: viridis: capite brunneo, albescente variegato: gutture albescente: nuchâ totâ et pectore pallide brunneis, striis latis albis notatis.

Hab. in regione Himalayanâ.

Head and back of neck white tinged with green on the latter, the feathers margined with light brown; lower part of the back light yellowish green; scapulars dark green washed with brighter green; wing-coverts greenish, the least ones with a tinge of blue, the others washed with bright grass green; quills brown, light yellow at the base of the inner web, the outer web, especially of the secondaries, bright grass green; tail bright green above, blueish green below; feathers round the eye and ear-coverts hoary; throat white; the shafts of the feathers very distinct; breast white margined with pale brown,

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Additional references.—*Megalæma Hodgsoni*, Goff. in Schl. Mus. Pays Bas, Buccones, p. 34 (1862) Gray, Cat. Capit. Brit. Mus. p. 12 (1868). *Bucco lineatus*, Blyth, Ann. Nat. Hist. XX, p. 321 (1847). *Megalæma lineata*, Bonap. Consp. Vol. Zygod. p. 12 (1854), Horsf. & Moore, Cat. Birds Mus. E. I. Co. II, p. 636 (1856), Jerdon, Birds of Ind. I, p. 309 (1862). *Megalæma McClellandi*, Goff. in Schl. Mus. Pays Bas, Buccones, p. 36, foot-note (1862) Gray, Cat. Capit. Brit. Mus. p. 12 (1868).

giving it a marbled appearance; belly yellowish green, with a blueish tinge in some lights, and striped with brighter green; bill pale horny brown, with an orange or rufescent tinge; irides clear brown; legs and naked orbital skin pure yellow.

Hab. The lower ranges of the Himalaya from the Bramapootra to the Sutlej. Nepal (*Hodgson*), Dehra Doon (*coll. nostr.*), Kumaon (*Strachey*), Dacca (*Tytler*), Sikkim Terai (*Jerdon*).

M. hodgsoni is common along the foot of the Himalayas in the wooded ravines and slopes north of the Dehra Doon, but is never found in the Sewaliks which form the southern boundary of that valley. In this latter range it is replaced by *M. caniceps*, the "Jungle Barbet" of Jerdon. Neither have we noticed it in the open country of the Doon which intervenes, and as this open country separating the two mountain ranges is only from eight to twelve miles in width, and interspersed with groves and patches of forest, this peculiar local distribution shows strikingly how little these birds are naturally inclined to travel.

Dr. Jerdon says: "This Barbet is found throughout the whole extent of the sub-"Himalayan region, not ascending the hills beyond 1,000 or 2,000 feet, and rarely "that; it extends also to Dacca, Eastern Bengal, Assam, Sylhet, the whole Indo-"Chinese region, and also it is said Sumatra." In these two latter localities, however, he is referring to *M. lineata;* and in the sub-Himalayan region we have never heard of its occurrence west of the watershed between the Jumna and Sutlej.

This species replaces its congener *M. lineata* in Continental India, and is apparently confined to the Himalayan range. It is very similar to it in plumage, but of larger size. It may be distinguished by the broader white stripes, and paler and less defined brown edgings to the feathers of the head, neck, and breast. (See *M. lineata.*)

The following dimensions and observations were taken by Mr. Brian Hodgson in Nepal.

	Sex.	Length.	Expanse.	Weight.	Intestines.	Contents of Stomach.
November.		11·25	17		13″·	Pulpy berries only.
10th March.	♀	11·75	17	5·5oz.		
„	♂	11·5	16	4·5oz.		
20th April.	♀	„	„	„	15″·	Full of wild seeds.
20th May.	♀					Showed signs of moulting; ova small.
20th January.	♀	11·75	17·5	5·25oz.	14″·5	Soft pulpy fruits, with hard kernals.
30th December.	♀	12″·	18″·	6·oz.	13″·	Full of pulpy fruits.

The wing measures very nearly five and a half inches, the tail from three and a half to three and three quarters. Dr. Jerdon gives length 10·5, wing 5″·25, expanse 18″. inches. We have obtained a large number of specimens from the Doon, and the measurements of length taken in the flesh agree with those of Mr. Hodgson; so that Dr. Jerdon's is probably a little under the mark.

The following notes are from Mr. Hodgson's MS. writings : "It is found throughout "the lower region of Nepal, from the Terai to 4,000 feet elevation ; but it is rare in the "hills. It always breeds below in the valleys. The legs are pure yellow, as also the "orbital skin. The tongue is flat and cartilaginous, with the tips bifid and subjagged in "some specimens, obtuse and entire in others. The stomach is muscular, of slight subequal "thickness, the inner coat soft and smooth. The intestines are of equable capacity, and "there are no cœca. The bill is fleshy white, often with a rufescent tinge. The irides are "dusky brown, clearer in some specimens. The tail is shortish and even. The wings are "rounded and full ; the fourth, fifth, and sixth quills nearly equal and longest. It breeds "in holes of trees. The eggs are pure white, oval, and rather pointed at the smaller end."

"Three more examples had pulpy berries in the stomach, and one had wild loquats."

M. McClellandi (Moore), the type specimen of which was kindly placed at our disposal by Mr. F. Moore, seems to be only a very pale variety of this bird : the brown edgings to the feathers are perceptible on the breast, and in size it is similar, and it comes from the same locality. There is a specimen in a similar state of plumage in the Leiden Museum, and we have seen several almost as pale in colouring in life in the Doon which were undoubted *M. hodgsoni.*

The plate is figured from a specimen obtained by ourselves in the Dehra Doon, and represents an adult bird in full plumage. We do not know of any other existing figure of this bird.

J. G. Keulemans del. & lith.

MEGALÆMA LINEATA.

MEGALÆMA LINEATA.

(LINEATED BARBET.)

Capito lineata . . . . . (1816) Vieill. N.D. IV, p. 500.
Bucco leucorhynchus . . . . . (1820) Reinw. Batav. Courant.
Bucco fuscicapillus . . . . . (1822) Drap. Dict. Class, d'Hist. Nat. ii., p. 195.
Bucco lineatus . . . . . (1849) Blyth, Cat. Mus. A.S. Beng., pl. 66 *(partim)*.
Megalæma viridis. . . . . (1863) Goffin in Schl. Mus. Pays Bas, *Buccones*, p. 32.
Megalæma lineata . . . . . (1868) Gray, Cat. Capit. Brit. Mus., p. 12.
Megalæma hodgsoni . . . . . (1866) Walden, P.Z.S., p. 540.
Kroukrouk, of the Javanese *(Bocarmé)*.

M. viridis: gutture albescente: fronte brunneo: capite, nucha et pectore brunneis, albescenti striolatis.

Hab. In subregione Indo-Malayanâ.

General plumage bright grass-green; head, nape and sides of the neck earthy-brown, each feather having a dirty white central streak, less defined on the top of the head, and almost indistinguishable on the forehead; the feathers of the upper back green, similarly streaked with white; quills brown, the exterior edge of the primaries green at the base, the secondaries more broadly edged with green, especially the innermost, which are almost entirely green; chin dirty white; throat, breast, and upper part of the abdomen of the same colour, each feather broadly margined with earthy-brown, with a slight greenish tinge; lower part of the belly, vent and lower tail-coverts pale green with a blueish tinge; the whole of the green parts of the plumage irregularly marked with faint blue spots more or less conspicuous in different specimens; bill fleshy white, yellowish at the base; legs and feet dirty yellow; irides reddish brown, naked orbital skin citron yellow. Length 10 inches; wing 4·5; tail 3·25; tarsus 1·0.

Hab. Countries bordering the Bay of Bengal, south of Assam, down to Malacca and Java. Pegu, Tenasserim (*Blyth*), Kyodan, Tenasserim (*Walden*), Java (*Schlegel*).

We have considered this Barbet to be identical with the *Capito lineatus* of Vieillot, for though his description (*l.c.*) does not exactly tally with this species, yet it cannot possibly be referred to any other. Vieillot's bird, according to his account, "a le bec couleur de "corne blonde; la tête et *tout le corps* rayès de brun clair, sur un fond de blanc sale; les "ailes et la queue vertes; les pieds couleur de clair; et la taille de *cabezon kottorea*. On "le trouve dans l' Australasie." No Barbet has the whole body striped brown on a white ground, but the white stripes on the brown ground of *M. lineata* come in some specimens sufficiently far down the back and breast to give that appearance to a casual observer. The locality, Australasia, is sufficient to distinguish it from *M. Hodgsoni*, the only other bird which at all approaches the description.

M. lineata is indeed closely allied to *M. Hodgsoni*, but differs from it in its smaller size and in the colouring of the head and neck, the brown edgings to the feathers of which parts are deeper in colour and much broader than in the Himalayan bird, giving it a generally darker appearance. The forehead especially is almost entirely brown in the present bird, and whitish in *M. Hodgsoni*. The island of Java appears to be the head-quarters of the Lineated Barbet, but it is also found along the coast of the Bay of Bengal as far as Burmah, the specimens from Pegu and the Tenasserim provinces inclining to *M. Hodgsoni*, but still decidedly referable to the present species.

Goffin (*l.c.*) has united *M. lineata* to *M. viridis* of Southern India, but he is certainly wrong in this identification; the Green Barbets are so closely allied that it is almost impossible to distinguish them by the means of a written description only, and there are no specimens of *M. viridis* in the Leiden Museum. The notes on the habits which he gives, with one exception, are referable to this latter species. We extract from his work an interesting note by the Viscount de Bocarmé, who observed the bird in Java. He writes:—

"This Barbet is common in Java, where it is sometimes caged and is fed in captivity "on bananas; in its wild state, however, it feeds on all kinds of fruits. Its note resembles "the words 'kroukrouk, kroukrouk,' whence it derives its name among the hill-men."

Our plate of the bird, which is here figured for the first time, is taken from an adult specimen from Java in our own collection. No difference is to be found in the colouring of the sexes.

MEGALÆMA INORNATA.

MEGALÆMA INORNATA.

(THE BROWN-BREASTED JUNGLE BARBET.)

Megalaima inornata . . . . . (1870) Walden ; Ann. Nat. Hist. v. 219.

M. sexibus similibus : viridis : capite albo brunneoque ornato : gutture pectoreque brunneis haud striatis.

Hab. in Indiâ continentali.

Sexes alike ; body green ; head, neck, and upper back pale earthy-brown, shading into bright grass-green on the back and tail ; the feathers on the nape and upper back are finely centred with yellowish white, the stripe gradually disappearing towards the tail ; wing-coverts yellowish green, indistinctly tipped with white (much less so than in *M. caniceps*) ; quills dark brown, inner webs at base and exterior edges yellowish white ; throat, breast, and upper belly earthy-brown, the shafts being of a faintly paler brown ; the rest of the under surface is bluish green ; tail underneath greenish blue ; irides, bill, legs, and orbital skin similar to those of *M. caniceps* ; wing 4″·9, tail 3″·4.

Hab. Malabar, Coorg, Candeish (*Walden*).

This species, which is one of the latest additions to this family, is closely allied to *M. caniceps*. It was first separated by Lord Walden, who received a series of specimens from Central India. We give his remarks on the subject *in extenso* :—

"The large Green Barbet of South-western India has hitherto been confounded with that of Central India—*M. caniceps* (Franklin). That of South-western India, to which I give the title of *M. inornata*, is to be distinguished from all other known Green Barbets by having the chin, throat, breast, and upper portion of the abdominal region uniform pale brown ; each feather has the shaft faintly paler. The plumage above closely resembles

that of *M. caniceps*; but the terminal spots on the wing-coverts and tertiaries are almost altogether wanting. The absence of the broad pale median streaks on the pectoral plumage readily distinguishes it from that species."

Lord Walden gave the above description from seven specimens in his collection, two from Malabar, two from Coorg, and three from Candeish: it is from one of these that our description and figure in the Plate are taken.

MEGALÆMA CANICEPS

MEGALÆMA CANICEPS.

(THE HOARY JUNGLE-BARBET.)

Bucco caniceps	(1830) Franklin, P. Z. S. p. 121, No. 90.
,, *lineata*	(1833) Tickell, J. A. S. Beng. II. p. 579.
Megalaima caniceps	(1840) G. R. Gray, Gen. of Birds, II. p. 429.
Bucco viridis	(1840) Jerdon, Madr. Journ. XI. p. 217.
,, *zeylanicus*	(1840) Jerdon, Madr. Journ. II. Suppl. p. 217.
Megalaima lineata	(1854) Tytler, Ann. Nat. Hist. XIV. p. 173.
Megalæma caniceps	(1854) Bonaparte, Consp. Vol. Zyg. p. 12.

Soonterar of Manbhoom . .	(Beavan).
Burra Bussuntha of Bengal . .	(Jerdon).
Kutumra of the Deccan . .	(,,)
Kudrunga of Central India . .	(,,)
Kuturga of the Maharattas . .	(,,)
Kutur haki of the Canarese . .	(,,)
Gandu kurnam in Teloogoo . .	(,,)
Kohtoor of Rohilkhund and Dooab .	(Marshall).

M. major: sexibus similibus: viridis: gutture brunneo: pectore brunneo pallide striato: capite nuchâque albescenti-brunneis.

Hab. in regione Indicâ.

Sexes alike; body green; head, neck and upper back pale earthy brown, shading into bright grass green on the back and tail; the feathers on the nape and upper back are finely centered with yellowish white, the stripe gradually disappearing towards the tail, the feathers on the lower back being only tipped with whitish; the wing-coverts are yellowish green,

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Additional references.—*Bucco caniceps:* Ewer, P. Z. S. p. 92 (1842); Jerdon, Mad. Journ. XIII. pt. 2, p. 140 (1844); Hartlaub, Rev. Zool. p. 337 (1841); Blyth, J. A. S. Beng. XV. p. 12 (1846). *Megalaima caniceps:* Horsf. and Moore, Cat. Mus. E. I. C. II. p. 637, No. 924 (1856); Blyth, Cat. Mus. A. S. Beng. p. 66, No. 318 (1849); Blyth, J. A. S. XX. p. 181 (1851); Bonaparte, Consp. Av. p. 144 (1850); Jerdon, Birds of India, I. No. 193 (1862); Goffin, Cat. Mus. Pays Bas, Buccones, p. 36 (1863); G. R. Gray, Cat. Brit. Mus. Capit. pt. III. p. 12 (1868). *Megalæma caniceps:* Beavan, Ibis, p. 411 (1865); Blyth, Ibis, p. 311 (1867); Beavan, Ibis, pp. 2, 3 (1869).

each feather tipped finely with white; the quills are dark brown, but their inner webs at the base, as well as the exterior web of both primaries and secondaries and the tips of the latter, are edged with yellowish white; the chin and throat are earthy brown, paler on the breast and shading into light blue green on the under surface, the brown feathers of the breast being faintly centred paler; the under surface of the tail greenish blue; rictal bristles strongly developed; the flesh colours vary in tint according to the time of year; the bill is pale brown, with a pinkish or orange tinge; the bare skin round the eyes and on the sides of the face is orange, brighter and more yellowish in the spring; the eyelid is lighter yellow; the legs are yellow with more or less brownish tinge in them, and the claws are pale greenish horny; irides clear brown.

The female is rather smaller than the male, but the difference is slight. The dimensions of a male average about: length 10″·5, expanse 16″., wing 4″·75, tail 3″·, tarsus 1″· inch; and of a female: length 10″·25, expanse 15″·5, wing 4″·6, tail 3″· inches.

Habitat. Throughout Northern India in wooded localities, but not extending into the Himalayas, or, as far as we know, anywhere north of the Sutlej; Sewalik mountains and Rohilkund (*Marshall*); N. W. Provinces (*Ewer*); Manbhoom (*Beavan*); Central India, Nagpoor, and Chanda (*Jerdon*); Bengal and the Vindhyan hills (*Franklin*); Eastern Ghats, Malabar and Goomsoor (*Jerdon*). The last localities we have taken from Dr. Jerdon's book on the birds of India; but we have never seen any specimens of true *M. caniceps* from Southern India, and we rather suspect they will turn out to be Lord Walden's new species, *M. inornata.*

This dingily-coloured Barbet belongs to a sub-group of the *Megalæminæ*, the different species of which are closely allied and not easily distinguishable from each other by description only; but as more is known of the habits of this species than of those of the others, we have pointed out the distinctions at greater length under the descriptions of *M. zeylonica* and *M. inornata.*

The place where we have had the best opportunities of observing the habits of the Hoary Jungle Barbet was the Kaloowala Rao, a valley on the Southern slope of the Sewalik mountains, situated about half way between the Ganges and the Jumna and the source of a mountain torrent from which it derives its name. The sides of the mountains here, and the plains for about two or three miles from their base, are covered with forest interspersed with patches of rank jungle grass, the forest consisting chiefly of thorn trees and bushes about twenty feet high, with here and there a clump of fine old mango trees, or a solitary

peepul or banyan stretching out its giant arms far over the tops of the other trees, and marking the probable site of some ancient village of bygone days in what is now a silent wilderness. The soil is stony and dry, and during the greater part of the year, though the thick covers abound with pea fowl, jungle fowl, grey partridges, and spotted deer, the oppressive stillness of the air in the heat of the day is only broken by the crackling of the dead leaves under the feet of the traveller. Far different is the case when the shade of one of these wild fig trees has been reached; the dense foliage seems almost alive with the rustling caused by the ceaseless creeping of the Barbets among the small twigs in search of food and the patter of the berries that they occasionally drop. So like, however, is their plumage to the colour of the trees that we have frequently waited many minutes and strained our eyes among the rustling branches in the hopes of catching sight of them, without success; and as the curiosity was sharpened by the suspense, and the possibility of its being a new species gained ground in our minds, we generally ended by taking a blind shot at the moving foliage rather than risk a flying shot in our anxiety to ascertain the fact: the result, alas! always ending in disappointment, though we frequently bagged the bird. When startled by an intruder the Barbets fly leisurely off to the next fig tree, keeping just over the tops of the trees and moving in strong undulations with repeated flaps of the wings. They are not very shy, but when they have been once disturbed they do not stay long in the next tree, but change their position quickly several times till they recover their equanimity, when they may again be approached.

Their note is very loud and startling, but it has a clear metallic ring and would be pleasant if it were not associated in our minds with the intense heat of an Indian summer, when it comes with an oppressive iteration of sound across the burnt-up forests. It resembles the word *Kohtoor* repeated several times, the accent being on the last syllable. In the parts of the forests where the fig trees abound they may be heard calling to each other and making the woods resound with their clear ringing note. Dr. Jerdon says that "the call "*Kohtoor* is preceded by a harsh sort of laugh," and that "they continue to call for some "minutes at a time, and are heard at all hours, frequently indeed at night, especially when "there is moonlight."

Mr. Elliot, in some remarks on this bird's habits, notes that one was shot while pecking the flowers of a tree. This seems to be an occasional habit with others of this family also, for Mr. Brian Hodgson mentions finding the stomach of a specimen of *M. virens* full of the leaves of some odorous flowers. Its usual food, however, is fruit and berries. Dr. Jerdon mentions "insects" also; but this is probably only an occasional habit, as none of the specimens we have examined contained any. Our specimens were almost all killed in

the spring, however, when berries are abundant, and the insects are probably resorted to in the autumn and winter.

With regard to the breeding of this species, the following extract from a paper of Mr. Hume's in the Ibis will be found interesting:—

"Both these well-known Barbets, *M. caniceps* and *X. indica*, excavate holes in trees "and therein lay long oval thin-shelled eggs, which are like polished alabaster when blown, "but when fresh, owing to the yolk showing partially through, seem of a delicate salmon "pink. The same peculiarity is noticeable in many birds that lay in holes of trees; it is "especially conspicuous in two of our commonest Woodpeckers, *B. aurantius* and *P. maha-*"*rattensis*. Both the Barbets seem to be able to find out branches that are decayed inter-"nally, although to the human eye exhibiting no external signs of this; and into such, "through the harder outer shell of the branch, they cut a perfectly circular hole with the "edges neatly bevilled off inside and out. The eggs are at the bottom of the cavity into "which they have thus bored, and which they smooth a good deal interiorly, often a couple "of feet below the *door*, and laid merely on the chips that have been collected."

This faculty of discovering internally decayed branches is probably owing to their tapping with the bill rather than to increased powers of vision, and would account for their being frequently seen clinging to trees in places which can afford them no food.

The late Captain Beavan also gives some notes on this Barbet in the Ibis, which corresponds well with the accounts given above. We extract the following :-

"It is not common in Manbhoom. It frequents high trees in jungle, near rivers or on "hills, where it is often heard. A pair shot in March at Beerachalee were feeding on the "shoots and buds of the banyan. It breeds towards the end of March. At the beginning "of April two young birds and an addled egg were brought to me. There is no nest, as it "simply uses the hollow of a tree. The young are quite naked for some days after they "are hatched. The egg is elongated and white."

The figure in our plate is drawn from an adult male specimen obtained by ourselves in the sub-Sewalik forests, and now in our collection. It is life-size.

We are not aware of any other figure of this bird existing at present.

MEGALÆMA ZEYLONICA

MEGALÆMA ZEYLANICA.

(THE BROWN-HEADED CEYLON BARBET.)

Bucco zeylanicus	(1788) Gmelin; S.N., I. p. 408.
Le kottorea	(1806) Le Vaill.; Barbus pl. 38.
Capito zeilanicus	(1816) Vieill.; N. Dict. d'Hist. Nat. IV. p. 499.
Le cabezon kottorea	(1816) Do. Do. Do
Megalaima caniceps	(1840) G. R. Gray; Gen. of Birds II. p. 429.
Bucco kottorea	(1841) Hartlaub; Rev. Zool. p. 337.
,, *viridis*	(1850) Bonaparte; Consp. Av. I. p. 144.
Megalaima zeylanica	(1851) Blyth; J. A. S. Beng. XX. p. 181.
Megalæma zeylanica	(1867) Blyth; Ibis, p. 297.

Native Names.

Kotoorooal, Ceylon (Layard).
Kotoor, Male (Layard.)

M. minor; sexibus similibus; viridis; gutture brunneo; pectore brunneo, pallide striato; capite nuchaque læte brunneis.

Hab. in insulâ "Ceylon" dictâ.

Sexes alike. Body green; the head and neck dark earthy brown; the feathers of the neck longitudinally streaked towards the tip with pale yellowish; the upper back and wing-coverts dark green with an ochreous tinge, the former narrowly centred and the latter finely tipped with yellowish white; the quills brown, the edge of the inner web and exterior edge of the primaries cream colour; the rest of the upper plumage rich green. Entire throat and breast dark brown, shading into a light blue green on the abdomen; the feathers of the

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Additional references.—*Bucco zeilanicus:* Cuvier, Regn. An. p. 457 (1829); Latham, Ind. Orn. III. p. 229 (1790); Blyth, J. A. S. Beng. XV. pp. 13—282 (1846); Hartlaub, Rev. Zool. p. 337 (1841). *Megalaima caniceps:* Blyth, Cat. Mus. A. S. Beng. p. 66, No. 318 in pt. (1849); Blyth, J. A. S. Beng. XX. p. 181 in pt. (1851). *Megalaima zeylanica:* Horsf. & Moore, Cat. Mus. E. I. C. II. p. 608 (1856); Goffin, Cat. Mus. Pays Bas Buccones, p. 34 (1863); Layard, Ann. Nat. Hist. XIII. p. 446 (1853); Jerdon, Birds of India, I. p. 311 (1862); G. R. Gray, Cat. Brit. Mus. Capitonidæ, p. 13 (1868). *Megalæma zeylanica:* Blyth, Ibis, p. 311 (1867).

breast indistinctly centred with paler brown. Tail underneath greenish blue. Bill pale brown, with an orange tinge. Rictal bristles strongly developed ; the feathers of the forehead and chin stiff, shafted, and terminating in bristles. Naked skin of the cheek yellow. Legs and feet dull yellow. Iris brown. Length about 9″·5, wing 4·5, tail rather less than 3″ inches.

Hab. The island of Ceylon. (*Layard*, *Chapman.*)

This Barbet is the Ceylonese representative of the green group which forms such a well-marked sub-division of the genus *Megalæma*. It is most nearly allied to *M. caniceps* of continental India, and has been frequently united to it; but, as a peculiar local distribution is accompanied by a permanent difference in size and depth of colouring, we retain both as good species in the same way as we have retained the Himalayan and Javan species of Lineated Barbet as distinct. It may be distinguished from *M. caniceps* by the dark-brown instead of the pale earthy brown head, the generally darker colouring of the neck, throat, and breast, and the smaller dimensions. In *M. caniceps*, too, the upper back is greyish brown, while in *M. zeylonica* it is green. From Lord Walden's new species, *M. inornata*, it is distinguished by the pale streaks on the breast which are wanting in *M. inornata*, and also by the dark colouring, the latter species being of the two most similar to *M. caniceps*.

As but little is known of the habits of this species, we have thought it worth while to extract in full Mr Layard's very interesting account of it, which contains some curious information regarding its habit of clinging and tapping :—

" The Brown-headed Barbet is common in Ceylon, and universally distributed. It " feeds on fruits and berries of all kinds, which it swallows entire: it does not, that I know " of, devour small birds when in a state of nature ; but one kept in a large aviary at " Colombo destroyed all the little *Amadinæ* placed with it. Not content with snapping " them up when within his reach, he would lie in wait for them behind a thick bush or the " feeding-trough, pounce upon them unawares, and, after beating them a little on the " ground or perch, swallow them whole. When this cannibal came into my possession, he " was confined in a smaller cage than that in which he had at first been secured ; this " seemed to displease him, and he went to work to find some means of escape: he narrowly " examined every side and corner to discover a weak spot, and having detected one applied " himself vigorously to bore a hole through it as a Woodpecker would have done. Grasp- " ing the bars with his feet he swung himself round, bringing his whole weight to bear

" upon his bill, which he used as a pickaxe, till the house resounded with his rapid and " well-aimed blows. On being checked from exercising his ingenuity in this manner he " became sulky, and refused to eat or offer his call of recognition when I approached him: " in a day or two, however, he apparently thought better of the matter, resumed his labours " upon another spot, and fed as voraciously as ever, devouring huge slices of bananas, jungle " fruits, the bodies of any small birds I skinned, &c."

" This species breeds in hollow trees, laying three or four pure white but very shining " eggs; axis 1″·1, diameter ·95. The natives all affirm that the birds hollow out their own " nest-hole. One I saw was in an unsound tree, the nest slightly formed of a few bents of " dry grass."

The plate is drawn from a specimen in our own collection which was killed in Ceylon by Mr. Chapman, and which we obtained from Lord Walden. It represents an adult bird, life size.

del. & lith.

P.W.M. Trap Leiden exc.

MEGALÆMA PHÆOSTICTA

MEGALÆMA PHÆOSTRIATA.

(THE COCHIN CHINA GREEN BARBET.)

Bucco faiostrictus	(1831) Temm. Pl. Col. No. 527.
,, ,, ...	(1831) Temm. Pl. Col. text.
Bucco faiostriatus	(1841) Hartl. Rev. Zool. p. 337.
Megalaima faiostriata	(1846) G. R. Gr. Gen. of Birds, II, p. 429.
Megalaima phaiosticta	(1854) Bp. Consp. Av. p. 144.
,, ,, ...	(1863) Goffin, Mus. Pays. Bas. Bucc. p. 36.
Bucco faiostriatus	(1866) Walden, P.Z.S., p. 540.
Megalaima phaiosticta	(1868) G. R. Gr. Cat. Brit. Mus. Capit. p. 13.

M. sexibus similibus: viridis: capite toto brunneo: gutture albescenti, brunneo striato.

Hab. in regione Indo-Malayanâ.

Body green; head and neck dark umber brown, each feather laterally edged with brownish white, more broadly so on the head. A superciliary eye streak, ear-coverts and cheeks, bright yellowish green; upper plumage dark green; the quills brown, inner webs at the base, and exterior edge of the primaries, pale yellowish white. The chin, throat, and upper breast, pale brownish white, each feather centred with brown; on the breast there are some irregular yellow markings; the rest of the under surface is pale green, darker on the flanks, each feather being narrowly centred with brown; tail underneath greenish blue. Beak dark horn colour, pale yellow at the base of the lower mandible, rictal bristles black, and strongly developed; orbital region blackish, legs and feet dark plumbeous. Wing 4·2, tail 2·5, tarsus ·85.

Hab. Cochin China (*Diard*).

The only known specimen of this rare Barbet belongs to the Leiden Museum, but thanks to Professor Schlegel, from whom we obtained the loan of it, we are able to give a description and plate from the type itself. It belongs to what we have called for the

sake of distinction, the green group of the *Megalæminæ*, and is most nearly allied to *M. viridis* from Malabar, especially in size and shape; it may be, however, distinguished from it in colour by its bright green superciliary eye-streak and cheeks, and by its striped throat.

Though the specimen about which we are now writing was procured as long ago as 1830, nothing more has been heard of this species; and we are unable to give any particulars of it excepting what information we can get from the dried skin; our figure represents the type, and is the identical specimen that was figured by Temminck in his "Receuil des Oiseaux."

P.W.M. Imp. Leiden exc.

XANTHOLÆMA HÆMACEPHALA.

XANTHOLÆMA HÆMACEPHALA.

(THE CRIMSON-GORGETED BARBET.)

Le Barbu des Philippines	(1760) Brisson; Ornith. IV. p. 99, and pl. vii. f. 2.
Bucco hæmacephalus	(1776) Müll.; Syst. Nat. Suppl. p. 88.
„ *flavigula*	(1783) Bodd.; Tabl. Pl. Enl. p. 30.
„ *nanus*	(1783) Bodd.; Tabl. Pl. Enl. p. 47.
Barbu des Philippines	(1783) Buff.; Pl. Enl. pl. 871.
Bucco philippensis	(1788) Gmel.; S. N. I. p. 407.
„ *parvus*	(1788) Gmel.; S. N. I. p. 407.
„ *indicus*	(1790) Lath.; Ind. Orn. I. p. 205.
„ *rafflesius*	(1832) Boie; Briefe aus Ostind. no. 15.
„ *luteus*	(1831) Less.; Tr. d'Orn. p. 163.
„ *flavicollis*	(1823) Vieill.; Enc. Méth. p. 1424.
Le Barbu à plastron rouge	(1806) Le Vaill.; Barbus, pl. 36.
Bucco philippinus	(1811) Illig.; Prod. Mamm. et Av. p. 202.
Le Cabezon Bussen Buddo	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 497.
Capito indicus	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 497.
Le Cabezon à gorge jaune	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 498.
Capito philippensis	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 498.
„ *parvus*	(1816) Vieill.; N. Dict. d'Hist. Nat. III. p. 499.
Megalaima philippensis	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
„ *lutea*	(1846) G. R. Gray; Gen. of Birds, II. p. 429.
„ *indica*	(1849) Moore; Notes of Birds in N. W. P. p. 16.
Xantholæma flavigula	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
„ *philippensis*	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
„ *indica*	(1856) Horsf. & Moore; Cat. Mus. E. I. C. II. p. 644.
Megalaima rafflesia	(1850) Bonap.; Consp. Av. I. p. 144.
Xantholæma rafflesia	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Megalæma philippensis	(1861) Irby; Ibis, p. 229.
Megalaima flavigula	(1863) Goffin; Mus. Pays Bas, Bucc. p. 24.
„ *lathami*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 9.
„ *hæmacephala*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 10.
„ *rubrifrons*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 11.

NATIVE NAMES.

Phoouk Bussunt	Maunbhoom	(*Beavan*).
Chanda	Sumatra	(*Raffles*).
Bassunta lisora	Rohilkund	(*Philipps*).
Tambut	Maharattas	(*Sykes*).

X. viridis, subtùs striata, fronte coccineâ, gutture sulphureo.

Hab. in subregione Indo-Malayanâ.

Sexes alike; body green; forehead, top of the head, and a broad pectoral gorget glittering crimson; a broad stripe above and below the eye, and the throat, sulphur-yellow; a band across the occiput, ear-coverts, and a mustachial stripe jet-black; nape and sides of the neck washed with verditer blue; the feathers of the upper surface are edged with paler green; quills brown, pale yellowish at the base of the inner web; a crescent of golden-yellow below the crimson gorget; under surface yellowish white, streaked with green; tail underneath greenish blue; bill black; orbital skin dull crimson; irides dark hazel; legs and feet coral-red. Length $6\frac{1}{2}''$, extent $11''$, wing $3\frac{1}{4}''$, tail $1\frac{1}{2}''$.

Hab. From Ceylon, throughout India and the Malayan archipelago, to the Philippine Islands. Ceylon (*Layard*); Madras (*Jerdon*); the Deccan (*Sykes*); Vindhyan Hills (*Franklin*); N.-W. Provinces (*Ewer*); Punjab (*Coll. nostr.*); Kumaon (*Irby*); Nepal (*Hodgson*); Barrackpoor, Maunbhoom (*Beavan*); Moulmein (*Beavan*); Tenasserim, Siam (*Briggs*); Malacca (*Cantor*); Sumatra (*Wallace*); Cochin China (*Diard*); Philippines (*Schlegel*).

The Crimson-Gorgeted Barbet is by far the most widely distributed species of the Asiatic group, even if restricted to *X. indica* of Latham; but if the local varieties are, as we have considered them, unworthy of specific distinction, its range is coextensive with and even surpasses that of the entire subfamily.

Bucco hæmacephalus of Müller was founded on examples from Sumatra, as also was *B. rafflesius* of Boie. A male from that locality agrees with our Indian specimens in size and colouring; the black band is of median width, and the nape not very blue, showing it to be nearly in adult plumage; other examples from the same place are precisely the same as the Indian ones. Mr. A. R. Wallace remarks that the Sumatran bird differs somewhat from *X. indica* (Lath.) in having a smaller bill, green tail, small red breast-band, and a yellow cheek-spot. We have, however, been unable to separate them satis-

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Additional references.—*Bucco philippensis*: Hartlaub (1841), Rev. Zool. p. 337; Latham (1790), Ind. Orn. I. p. 203; Cuvier (1829), Règn. An. p. 457; Franklin (1830), P. Z. S. p. 121; Sykes (1832), P. Z. S. p. 97; Ewer (1842), P. Z. S. p. 92. *Bucco indicus*: Blyth (1847), Ann. Nat. Hist. p. 385; Hartlaub (1841), Rev. Zool. p. 337; Blyth (1846), J. A. S. Beng. p. 13. *Megalaima philippensis*: G. R. Gray (1860), P. Z. S. p. 358; Schomburgk (1864), Ibis, p. 258. *Megalaima indica*: Moore (1859), P. Z. S. p. 454; Philipps (1857), P. Z. S. p. 100; Adams (1858), P. Z. S. p. 475. *Xantholæma philippensis*: G. R. Gray (1860), P. Z. S. p. 358. *Xantholæma indica*: Briggs (1859), P. Z. S. pp. 150, 151; Jerdon (1862), Birds of India, I. no. 197; Beavan (1865), Ibis, p. 412; Beavan (1865), P. Z. S. p. 691; Blyth (1866), Ibis, p. 358; Beavan (1869), Ibis, p. 416; Hume (1869), Ibis, p. 2; Walden (1869), Ibis, p. 211. *Megalaima rafflesia*: G. R. Gray (1868), Cat. Brit. Mus. Capitonidæ, p. 11. *Megalaima lutea*: Des Murs Icon. Orn. (1869) pt. 1. pl. 21.

factorily on the authenticated specimens we have seen. As Müller's name is the oldest (1776), we have adopted it as the specific name for the Indian bird.

B. flavigula of Boddaert, a figure of which is given in the 'Planches Enluminées,' is the same as *X. hæmacephala*. The locality is Sumatra.

B. nanus is a bird in immature plumage, probably from the same locality as *B. flavigula*.

B. philippensis of Brisson is founded on specimens from the Philippines. His description agrees exactly with that of *X. hæmacephala*, except in the back of the head, which he states to be green, omitting to mention the black band across the occiput; the green head is simply a mark of nonage. The black band varies very much in width and intensity in specimens from all parts, and is wanting entirely in the immature bird. There is a specimen in the Leyden Museum, labelled "♀, Philippines," which has the black line across the head fainter and narrower than usual, and the nape rather more washed with blue. We have two specimens in our own collection from the Philippines (from Verreaux) agreeing precisely with our Indian specimens in colour, but a trifle longer in the wings, and with somewhat larger bills. These considerations, and a careful comparison of the specimens, have determined us to include *X. philippensis* of Brisson among the synonyms of *X. hæmacephalus*, although further research may possibly show it to be distinct. A young male from Cochin China in the Leyden Museum is identical with our specimens from the Philippines and India.

Bucco indicus of Latham is the bird from Continental India, and is the specific name in most general use, and the one that would stand if the Malayan varieties prove to be good species. It is the *Xantholæma indica* of Jerdon's 'Birds of India.'

The specimens from Ceylon are identical in colouring with the Indian bird. One male in the Leyden Museum has the black occipital band very broad, but otherwise is precisely similar.

Bucco luteus of Lesson, a figure of which is given by Des Murs (*l. c.*), is only a yellow variety of this species. This same peculiarity is also found in *Palæornis torquatus* and *Merops viridis*.

This species may be distinguished from *X. rubricapilla* and *X. malabarica* by its striped under surface, and from *X. rosea* by its yellow cheeks and throat.

The Rev. T. Philipps, in a paper communicated to the Z. S. by Mr. F. Moore, makes the following remarks on *X. hæmacephala*:—"It abounds in Rohilcund, and is also a visitant in the neighbourhood of Muttra. They occur in pairs. The voice of this bird is very remarkable; it begins in a low tone, and gradually increases in pitch and power until the whole tree seems vocal with one full rich sound. This ubiquity of sound much deceives a person endeavouring to see the bird which causes it, as he may look to any part of the tree and his ear will never guide his eye. Another deception is the smallness and green colour of the bird; and the last is its immobility, for it remains fixed to one spot all the while it utters its note. When not thus engaged, *it runs up and down the tree like a Woodpecker*, displaying its beautiful yellow and green clothing."

The late Captain Beavan gives the following interesting account:—"This species is extremely common in Maunbhoom. Its call is heard everywhere, and at all hours. It taps trees with its beak. It lays its eggs in a hole in a decayed bough, which it excavates for itself. It breeds at Maunbhoom in the beginning of April. The eggs are generally three in number, white, and much elongated; length 1 inch, greatest breadth ·62. A bough was brought to me which it had excavated and formed into a nest; the length of the hole was about 7 inches, and the diameter about 3 inches. There was no nest at the bottom. It seems always to select the underside of a bough to commence operations upon."

Captain Beavan also mentions having shot them in the act of tapping while clinging on to the bark of a tree, a habit which we also have frequently observed. As, however, their food is chiefly fruits and buds, and the insects occasionally found in their stomachs are not such as live in crevices of bark, it is probable that in thus tapping they are seeking to discover an unsound bough to commence building-operations upon, rather than insect food.

In the Umballa and Saharunpoor districts they breed a little later, commencing about the middle of April; they usually select some very soft tree, the "*Bakhain*" or the Mango, and leave a few of the decayed chips at the bottom of the hole. On one occasion, however, we found a nest in a living branch of a peach-tree, the wood of which is very hard and close-grained. The entrance was on the underside of the bough, not more than four feet from the ground; and the hole was nearly a foot deep and much too small to admit the hand of even a boy of twelve; the mother sat very close and was quite fearless; after beating a tattoo on the branch with a stick, we came to the conclusion she was not at home, so tried to introduce a hand, which was violently pecked at; on removing it she came up to the entrance and looked out with a defiant air, and then retreated inside again, and we failed

altogether in persuading her to come out. Captain Beavan's description of the eggs is quite accurate. It is a familiar and fearless bird, breeding freely in gardens close to houses in the stations of the North-west Provinces.

Dr. Jerdon, in his work on the Birds of India, gives the following notes on the nidification and habits of this species:—"The Crimson-breasted Barbet is very common wherever there is a sufficiency of trees, inhabiting open spaces in jungles, groves of trees, avenues, and gardens, being very familiar, and approaching close to houses, and not unfrequently perching on the house-tops. As far as I have observed, it does not climb like the Woodpeckers, but hops about the branches like other perching birds. The Rev. Mr. Philipps states that it runs up and down the tree like a Woodpecker; and other observers have asserted that it climbs to its hole. A pair bred in my garden at Langor, in the cross beam of a vinery: the entrance was from the underside of the beam, perfectly circular; it appeared to have been used for several years, and the bird had gone on lengthening the cavity inside year by year till the distance from the original entrance was four or five feet; and it had then made another entrance, also from below, about two and a half feet from the nest. I quite recently observed a nest of this bird in a hole of a decayed branch of a tree, close to a house, in a large thoroughfare in Calcutta."

There are figures of this species to be found in Buffon, Le Vaillant, and Des Murs, but no modern ones. Our Plate is taken from specimens in our own Collection, obtained from Umballa, and represents a pair of adult birds life-size.

XANTHOLÆMA ROSEA.

XANTHOLÆMA ROSEA.

(THE ROSE-NECKED BARBET.)

Bucco roseus	(1806) Dum.; Dict. Sci. Nat. IV. p. 52.
Le Barbu rose-gorge	(1806) Le Vaill.; Barbus, pl. 33.
Capito rosaceicollis	(1816) Vieill.; N. Dict. d'Hist. Nat. IV. p. 500.
Le cabezon rose-gorge	(1816) Vieill.; N. Dict. d'Hist. Nat. IV. p. 500.
Bucco barbiculus	(1817) Cuv.; Règ. An. I. p. 428.
,, *roseicollis*	(1829) Vigors; Mem. Raffl. p. 667.
Megalaima rosea	(1846) G. R. Gray; Gen. of B. II. p. 429.
Megalæma (*Xantholæma*) *rosea*	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Xantholæma rosea	(1856) Horsf. & Moore, Cat. of B. II. p. 647.

X. sexibus similibus: fronte coccineâ: subtus striata: gutture coccineo.

Hab. in insulâ "Java" dictâ.

Sexes alike; green; forehead, top of the head, a broad stripe below the eye, throat, and upper breast scarlet; upper plumage dark green, the occiput and nape washed with cindery blue; quills brown, exterior web edged with green, and interior web yellowish white at base; lores, a band across the head, cheeks, ear-coverts, and sides of the neck black; underparts yellowish white, irregularly striped with dark green; bill black; irides brown; orbital skin red; legs and feet coral-red. Wing 3″, tail 1″·3.

Hab. Java (*mus. nostr.*).

The Rose-necked Barbet is (like other species found in Java) peculiar to that island, and is the sole representative of the genus *Xantholæma* there. It differs from all, except *X. hæmacephala*, by its striped breast, and from that species by its red throat.

The following note is from Bocarmé's MSS. preserved at Leyden:—

"Common all over the island of Java, where its monotonous note, resembling '*hunkook*,

Additional references.—*Bucco roseus*: Cuvier (1829), Règn. An. p. 457; Hartlaub (1841), Rev. Zool. p. 337. *Megalaima rosea*: Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 27; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 9.

hunkook,' is continually to be heard. It sits upright on the top of the highest branch, generally on one which has no leaves. The fruits of the Indian fig often attract them to public places in the middle of villages."

There is a figure of it in Levaillant's 'Barbus,' but in no later work.

Our Plate and description are taken from specimens in our own collection.

XANTHOLÆMA RUBRICAPILLA.

XANTHOLÆMA RUBRICAPILLA.

(THE ROSE-CROWNED CEYLON BARBET.)

Bucco rubricapillus	(1776)	Brown, Ill. XIV.
Le Barbet à joue jaune	(1776)	„ „ XV.
Bucco rubricapillus	(1788)	Gmelin, S. N. Vol. I. p. 408.
„ *Lathami*	(1788)	„ „ „
Le barbu varbichon	(1806)	Le Vaill. Barbus, p. 56.
Le cabezon à courrone rouge	(1816)	Vieill. N. Dict. d'Hist. Nat. p. 497.
Capito rubricapillus	(1816)	„ „ „ „
Le cabezon à masque rouge	(1816)	„ „ „ p. 499.
Capito Lathami	(1816)	„ „ „ „
Megalaima rubricapilla	(1846)	G. R. G. & Gen. of B. p. 429.
„ *Lathami*	(1846)	„ „ „ „
Megalæma rubricapilla	(1849)	Blyth, Cat. of B. Mus. A. S. p. 68.
Xantholæma „	(1856)	Horsf. & Moore, Cat. of B. II. p. 646.
„ „	(1867)	Blyth, Ibis, p. 297.

X. sexibus similibus: viridis: gutture aurantiaco: nuchæ lateribus viridescenti cyaneis.

Hab. in insulâ "Ceylon" dictâ.

Sexes alike; body green, forehead and sinciput scarlet; a band across the top of the head black; occiput and nape green washed with verditer; the rest of the upper plumage dark green edged with paler green; quills brown, pale yellowish at base of inner webs, exterior web edged with green; lores, a supercilliary eye-streak, cheeks, ear-coverts, and throat rich golden yellow, the ear-coverts being tipped with black, forming a continuation of the band across the head; moustachial streak and sides of the neck verditer; a large spot on the upper breast scarlet edged with yellow; breast light yellowish green shading

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Additional refrrences.—*Bucco rubricapillus:* Lath. Ind. Orn. p. 205 (1790); Cuv. Regn. Anim. p 457 (1829); Hartl. Rev. Zool. p. 337 (1841); Blyth, Journ. As. Soc. Beng. pp. 386—464 (1847). *Bucco Lathami:* Lath. Ind. Orn. I. p. 205 (1790); Cuv. Regn. Anim. I. p. 457 (1829). *Megalæma rubricapilla:* Bonap. Consp. Av. p. 144 (1850). *Megalaima rubricapilla:* Bonap. Consp. Vol. Zyg. p. 12 (1854); Layard, Ann. Nat. Hist. 1. 448 (1854); Tenn. Ceylon, I. p. 178 (1860); Goff. Mus. Pays Bas, Buccones, p. 26 (1863).

into blue-green ; tail underneath greenish blue ; rictal bristles black, fine, and extending beyond the tip of the bill, which is plumbeous black ; irides brown ; legs and feet olive brown.

Habitat. The island of Ceylon. (*Layard, Chapman*).

This little Barbet is the representative species in Ceylon of the genus *Xantholæma*. It is said by Le Vaillant to come from Malacca and Java, but this is most probably an erroneous statement as far as we can discover, no specimens have been recorded as received, from either of these localities; but from what we yet know on good authority it is peculiar to the island of Ceylon, as also is *M. zeylonica* and *M. flavifrons*. The present bird is the most beautiful species of the genus, its nearest ally being *X. malabarica*, which has been obtained in Southern India, and differs from *X. rubricapilla* in having the throat and cheeks scarlet instead of golden yellow. (See *X. malabarica*.)

It is a very common bird in Ceylon. Layard says he has found numbers about Colombo and Jaffna, and has seen it brought from Batticola. It frequents the banyan tree *(Ficus indica)*, and like the other Barbets feeds on the ripe figs, swallowing them entire. It is not very often seen in collections. Lord Walden, who has a large series, kindly lent us one, and it is from this specimen that the accompanying plate and descriptions are taken. Figures of this species are to be found in the works of Le Vaillant and Brown.

XANTHOLÆMA MALABARICA.

XANTHOLÆMA MALABARICA.

(THE MALABAR BARBET.)

Bucco barbiculus	(1846) Blyth; J. A. S. p. 13 (descr. orig.).
„ *malabaricus*	(1847) Blyth; J. A. S. pp. 386, 465.
Megalaima malabarica	(1849) Blyth; Cat. of Birds, App. p. 336.
Xantholæma malabarica	(1856) Horsf. & Moore; Cat. of B. II. p. 647.
„ „	(1862) Jerd.; B. of India, I. p. 317.
Megalaima malabarica	(1863) Goffin; Mus. P. B. Bucc. p. 27.
„ „	(1868) Gray; Cat. B. M. Capit. p. 9.

X. sexibus similibus: viridis: fronte coccineâ: subtus haud striata: gutture coccineo, aurantiaco marginato.

Hab. in provinciâ Malabaricâ.

Sexes alike; body green; forehead, sinciput, and a stripe above and below each eye rich crimson; a black band across the top of the head; occiput, ear-coverts, and sides of the throat verditer; upper plumage dark green, each feather indistinctly edged with pale greenish-blue; quills brown, exterior web bordered with green, and pale yellowish at the base of the inner webs; throat and upper breast rich crimson, the feathers irregularly tipped with gold-colour, more so on the upper breast, where they gradually shade off into light green; under surface bright grass-green washed with verditer; tail underneath greenish blue; bill and rictal bristles black; irides reddish brown; legs and feet red. Length 6″·5, wing 3″·2, tail 1″·5, tarsus 0″·7, bill at front 0″·5.

Hab. Malabar (*Blyth*, *Jerdon*).

The Malabar Barbet is most nearly allied to *X. rubricapilla*, and takes the place of that species in Southern India, the distinguishing feature being the colour of the throat. From the other members of the genus it may be known by the colouring of the under surface, it being distinctly striped in *X. hæmacephala* and *X. rosea*, while in this species it is plain green washed with verditer. It is a rare bird apparently, there being no specimens

in the great Museums of Europe, as far as we are able to find out. We were fortunate in obtaining one from Mr. T. C. Eyton.

Dr. Jerdon, in his 'Birds of India,' gives the following account of it:—

"This Barbet is only found in parts of the Malabar forests. I have met with it rarely in the Wynaad, and at one or two localities near the summit of the Western Ghats in Mysore. I have had it also from the Travancore hills. Its call is similar to that of *X. indica*, but rather lower and deeper in its tone."

The original description was given by Mr. Blyth in the 'Journal of the Asiatic Society of Bengal' for 1846 (*l. c.*).

No previous figure of this bird exists; our description and Plate are taken from Mr. T. C. Eyton's specimen.

J G Keulemans del & lith

P W M Trap, Leiden exc

XYLOBUCCO DUCHAILLUI, 1 ad 2 juv.

XYLOBUCCO DUCHAILLUI.

(DU CHAILLU'S BARBET.)

Barbatula duchaillui	(1855)	Cass. Proc. Acad. Phil., p. 324.
,, ,,	(1869)	Sharpe, Ibis, p. 193.
Barbatula formosa	(1855)	Verr. Rev. et Mag. de Zool., p. 213, pl. 5.
Pogonias duchaillui	(1857)	Hartl. Orn. Westafr., p. 171.
Buccanodon duchaillui	(1859)	Verr. P.Z.S., p. 397.
Megalæima duchaillui	(1862)	Goffin in Schl. Mus. Pays Bas *Buccones*, p. 39.
,, ,,	(1868)	Gray Cat. Capit. Brit. Mus., p. 13.

X. sexibus simillibus: pileo coccineo: capite postico nucha dorsoque purpurascenti-nigris, hoc flavo punctatis: corpore subtus flavo transfasciato.

Hab. In Africâ occidentali.

Adult. Crown of the head brilliant crimson, nape deep purplish-blue unspotted; upper part of the back, scapulars, and wing-coverts, deep purplish-blue spotted with chrome-yellow; lower part of the back, rump, and upper tail-coverts black, thickly banded with chrome-yellow; greater wing-coverts black, edged with chrome; quills brown, white at the base, secondaries edged externally with chrome; tail blackish-brown above, pale brown underneath; a superciliary stripe extending down the sides of the neck chrome; throat, cheeks, and ear-coverts deep purplish-blue; rest of the under surface black, thickly marked with broad transverse bands of chrome; bill black; legs and feet pale plumbeous; irides brown.

Young. Similar to the adult, but wanting the crimson head; the black is less lustrous, the yellow paler, and the whole plumage duller than in the old bird; bill yellow tipped with black.

Hab. West Africa: Moonda River (*Du Chaillu*); Gaboon (*Verreaux*); Fantee (*Sharpe*).

This handsome little Barbet was originally described by the late Mr. Cassin in 1855;

and later in the same year was described and figured by Messieurs J. and E. Verreaux in the "Revue et Magazin de Zoologie" under the name of *Barbatula formosa*, which latter title of course sinks into a synonym. It was first known from Gaboon, but lately Mr. Sharpe has received specimens from Fantee, though in neither of these localities does it appear to be common. In colouring it is very distinct and there is no allied species with which it could possibly be confounded.

All that is known of its habits has been recorded by the MM. Verreaux (*l.c.*).

"Its habits resemble those of all the rest of the family. It is only met with in Gaboon "during the rainy season, and always in the great forests in small flocks of five or six at a "time."

The figures in our plate represent an adult and a young bird, both from Fantee. They are drawn from specimens in the collection of Mr. R. B. Sharpe, who kindly placed them at our disposal.

This bird is the type of the genus *Buccanodon* of Verreaux, and the only species known. After a careful comparison of a large series of specimens we are unable to separate it from *Xylobucco* of Bonaparte, under which name it accordingly appears in our paper on the Classification of Barbets.

XYLOBUCCO SCOLOPACEA.

XYLOBUCCO SCOLOPACEUS.

(THE YELLOW-SPECKLED BARBET.)

Bucco scolopaceus	Temm.; MS.
Barbatula stellata	(1843) Fraser; P. Z. S. p. 4.
,, *scolopaceus*	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Xylobucco scolopaceus	(1854) Hartl.; Cab. Journ. Orn. p. 195.
Barbatula flavisquamata	(1855) Verr.; Cab. Journ. Orn. p. 101.
Megalaima scolopacea	(1863) Goffin; Cat. Mus. Pays-Bas, Bucc. p. 47.
,, *stellata*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 16.

X. sexibus similibus: minor: supra terricolor, flavipunctatus.

Hab. in Africâ occidentali.

Sexes alike; upper plumage brownish black, irregularly variegated with yellow, duller on the head, and more brilliant on the lower back and upper tail-coverts; wings and tail brown, the exterior webs finely bordered with yellow; throat pale greenish white; under surface of a dull yellow colour; the base of the interior web of the quills white; bill black; iris yellow; legs blackish; bristles black and strong. Length about 4″·75, wing 2″·1, tail 1″·5.

Hab. West Africa. Gold Coast (*Nagtglas*); Fantee (*Sharpe*); Dabocrom (*Pel*); Fernando Po (*Fraser*); Calabar, Gaboon (*Verreaux*); Moonda and Camma Rivers (*Du Chaillu*).

The Yellow-speckled Barbet is the type of the genus *Xylobucco* of Bonaparte; there is only one other species, Du Chaillu's Barbet, which has the forehead red, and the ground-colour of the back deep purplish blue.

Additional references.—*Bucco scolopaceus*: Bonaparte (1850), Consp. Av. p. 141. *Barbatula stellata*: Jardine (1851), Contr. Orn. p. 155. *Xylobucco scolopaceus*: Hartlaub (1854), Cab. Journ. Orn. p. 195, no. 406; Verreaux (1859), P. Z. S. p. 4; Sharpe (1871), Cat. Afr. B. p. 15. *Megalaima scolopacea*: G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 15.

Barbatula stellata, of which Fraser's types were kindly lent to us by Mr. Eyton, is identical with this bird.

Its general habits are similar to those of all the small African *Megalæminæ*. It is common apparently where it occurs; and its range extends almost throughout the coast of tropical West Africa.

Our Plate and description are taken from specimens in our own collection, obtained by Mr. Sharpe from Fantee. There is no other figure extant of this Barbet.

BARBATULA PUSILLA.

BARBATULA PUSILLA.

(THE DWARF BARBET.)

Le Barbion	(1806) Levaill.; Barbus, pl. 32.
Bucco pusillus	(1806) Dum.; Dict. Sci. Nat. 1st ed. IV. p. 50.
Le Cabezon Barbion	(1816) Vieill.; N. Dict. d'Hist. Nat. p. 497.
Bucco rubrifrons	(1816) Vieill.; N. Dict. d'Hist. Nat. p. 497.
Le petit Barbion	(1816) Vieill.; N. Dict. d'Hist. Nat. p. 499.
Bucco barbatula	(1832) Temm.; Pl. Col. sp. 18, 19.
„ *chrysoptera*	(1837) Swains.; An. in Menag. p. 322.
Barbatula parvus	(1841) Hartl.; Rev. Zool. p. 337.
„ *pusilla*	(1841) Hartl.; Rev. Zool. p. 337.
Megalaima parva	(1846) Gray; Gen. of B. II. p. 430.
„ *barbatula*	(1846) Gray; Gen. of B. II. p. 430.
Barbatula minuta	(1850) Bonap.; Consp. Gen. Av. p. 144.
Megalaima pusilla	(1863) Goffin; Mus. Pays Bas, Bucc. p. 40.
Megalæma pusilla	(1870) Finsch; Trans. Zool. Soc. VII. p. 282.

B. sexibus similibus: suprâ nigra flavo striata: capite summo rubro.

Hab. in regione Æthiopicâ.

Sexes alike; a narrow frontal band black; top of the head bright red; upper plumage black, variegated longitudinally with sulphur-yellow; upper tail-coverts entirely of that colour; wings and tail earthy brown; lesser wing-coverts broadly bordered with golden; greater wing-coverts and quills edged with the same colour, shading into creamy white on the tertiaries, inner webs at the base pale yellow; tail narrowly edged with sulphur-yellow; under surface greenish yellow; throat and under tail-coverts lemon-yellow; bill black; legs and feet dark greenish; irides dark brown. Length 4″·6, wing 2″·4, tail 1″·2.

Hab. N.-E. Africa: banks of the Blue Nile (*Von Heuglin*); Bogos Land (*Jesse*); near Senafé (*Blanford*). South Africa (*Layard*); Natal (*Ayres*).

Additional references.—*Bucco parvus*: Cuv. (1817), Règn. Anim. I. p. 428. *Barbatula pusilla*: Bonap. Consp. Vol. Zyg. p. 12; Verr. (1859), P. Z. S. p. 399; Heugl. (1861), Ibis, p. 124; Blanf. (1870), Geol. & Zool. of Abyss. p. 311; Sharpe (1871), Cat. Afr. B. p. 16. *Barbatula minuta*: Bonap. (1854), Consp. Vol. Zyg. p. 12; Hartl. (1857), Syst. Orn. Westafr. p. 173; Gurney (1864), Ibis, p. 353. *Megalaima pusilla*: Gray (1868), Cat. Brit. Mus. Capit. p. 14; id. (1870), Hand-l. of B. II. p. 176. *Megalæma barbatula*: Layard (1867), B. of S. Afr. p. 234; id. (1869), Ibis, p. 372. *Megalæma pusilla*: Heugl. (1871), Orn. N.-O.-Afr. I. p. 762.

This species seems to be not uncommon in certain localities in North-eastern Africa.

Mr. W. T. Blanford observed it during the Expedition to Abyssinia, and writes as follows:—"This bird was only met with in the subtropical region. It was far from rare about Mayen, in the Senafé pass, and common on the Anseba. It has a peculiar simple note, recalling that of the well-known "Coppersmith" of India (*Megalæma indica*), but rather less metallic and differently uttered; for while the call of the latter is single, with regular brief intervals, and repeated thus for a considerable time, that of the former is double or treble, followed by a pause."

The South-African bird seems to be a little larger than the one from North-eastern Africa; but Dr. Finsch considers that they cannot be specifically separated, and he examines the question at some length in his paper on Mr. Jesse's Abyssinian collections (*l. c.*).

Levaillant says that this species comes from the interior of Africa, from the same localities as *Pogonorhynchus leucomelas*. They live in small flocks, frequenting the mimosa trees, and may be seen climbing among the branches and tapping the bark in search of insects and butterflies' eggs. The note is weak, and resembles the syllables *piri-piri*. They breed in holes of trees, and lay six white eggs. The male during the breeding-season perches on the highest branches of the trees, and sings perpetually. It is not so common as *P. leucomelas*.

Mr. Ayres gives the following account:—"The note of this curious little bird so much resembles the tapping of a hammer on an anvil (having that peculiar metallic ring), that it is called in Natal the Tinker bird. It is silent during the winter months, commencing its monotonous cry in the spring, and continuing it throughout the summer.

"They are numerous, but not easily seen, in consequence of their small size, and their habit of sitting quietly on the tops of thick bushy trees. When in search of food, they climb and creep about the thick foliage of trees. They inhabit the coast-bush, being seldom found ten miles inland; those which I have seen at that distance from the coast were silent. The stomach of the specimen sent contained mulberries."

Our Plate is taken from a South-African specimen in the collection of Mr. R. B. Sharpe. There is a figure of this bird in Levaillant's 'Barbus,' but in no other work that we are aware of.

BARBATULA UROPYGIALIS.

——————— CHRYSOCOMA.

BARBATULA CHRYSOCOMA.

(GOLDEN-FRONTED BARBET.)

Bucco chrysoconus	(1832) Temm.; Pl. Col. 536. fig. 2.
Megalaima chrysocoma	(1841) Hartl.; Rev. Zool. p. 337.
Megalœma chrysocoma	(1846) Gray; Gen. of Birds, II. p. 430.
„ „	(1854) Hartl.; J. f. O. p. 196.
„ „	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
„ „	(1856) Heugl.; Syst. Uebers. p. 47.
„ „	(1857) Hartl.; Syst. Orn. Westafr. p. 173.
„ „	(1859) Verr.; P. Z. S. p. 398.
„ „	(1863) Goffin; Mus. Pays Bas, Bucc. p. 41.
„ „	(1868) Gray; Cat. Brit. Mus. Capit. p. 14.
„ „	(1870) Gray; Hand-l. of B. II. p. 176.
„ „	(1871) Sharpe; Cat. Afr. B. p. 16.

B. suprà nigra, flavo striata: capite antico aurantiaco: uropygio flavo.

Hab. in Africâ occidentali et septentr.-orientali.

Throat and under tail-coverts lemon-yellow; underparts bright chrome-yellow, paler at the sides; top of the head rich gold-colour, bordered in front and at the sides with black; upper plumage black, varied longitudinally on the back and shoulders with white, and on the rump and upper tail-coverts with sulphur-yellow; lesser wing-coverts black, broadly edged with golden-yellow; greater coverts, quills, and tail earthy brown, the exterior webs narrowly margined with golden yellow; lores, a line below and above the eye, and one from the angle of the beak white, the two latter separated from each other and the yellow throat by two narrow parallel lines of black; bill black; legs and feet lead-colour. Wing 2″·1, tail 1″·1.

Hab. W. Africa: Senegal, Gambia, Cassamanze (*Verreaux*); river Volta (*Ussher*). N. E. Africa: Senaar, Fazoglo (*Verreaux*); Central and West Abyssinia (*Heuglin*).

This pretty little Barbet seems to be nowhere very plentiful; and little is known of its habits. Until recently it was supposed to be found only in Senegambia and North-eastern

Africa; but during the late expedition up the river Volta, Governor Ussher shot a single example, thus showing that it extends down the west coast of the continent as far as Fantee.

Von Heuglin obtained specimens of this Barbet in North-eastern Africa, and writes as follows:—"I found them concealed in thick foliage along the streams of central and west Abyssinia, as well as on the Bahr-el-Abiad, and more rarely on the main streams of the Nile between Khartoum and Berber. They may be abundant; but, from their habits, they are very difficult to find."

Our Plate and description are taken from specimens in the collection of Mr. R. B. Sharpe.

BARBATULA UROPYGIALIS.

(THE FIERY-RUMPED BARBET.)

Barbatula pusilla, pt.	(1861) Heugl.; Ibis, p. 124.
„ *uropygialis*	(1862) Heugl.; J. f. O. p. 37.
Megalaima uropygialis	(1863) Goffin; Mus. Pays Bas, Bucc. p. 42.
„ „	(1868) Gray; Cat. Brit. Mus. Capit. p. 14.
„ „	(1871) Gray; Hand-l. of B. II. p. 177.
„ „	(1871) Heugl.; Orn. N.-O.-Afr. I. p. 761, tab. xxviii.

B. maxillâ mandibulâque æqualiter curvatis: suprà nigra flavo striata: pileo antico rubro: uropygio aurantiaco.

Hab. in Africâ septentr.-orientali.

Sexes alike; a narrow line of white crossing the forehead and widening out on to the cheeks; next to that a narrow frontal line of black, and then a patch of scarlet; hind part of the head and upper surface of the body black streaked and margined with bright golden, the rump very distinctly tinged with orange; quills and tail also black margined with golden; ear-coverts and a moustachial stripe black; under surface of the body yellowish, with a slight greenish tinge; bill blackish; feet dusky lead-colour; iris dusky.

Hab. Resident on the mountains of Bogos and Beni-Amer, on the Blue Nile up to Chartum, at Mareb, and probably also in the warmer parts of Abyssinia (*Von Heuglin*).

This species is confined to North-Eastern Africa, and has probably been confounded with *B. chrysocoma*, from which, however, it is easily distinguished by the orange rump and scarlet forehead. It was not obtained, curiously enough, by Messrs. Blanford and Jesse during their excursion into the Bogos country, though these gentlemen found *B. pusilla* there.

Dr. von Heuglin gives the following account of the species:—

"It lives singly and retired, in thick brushwood, near the ants' nests, on old trunks of dead trees, and in acacia-, willow-, and *Asclepia*-thickets alongside of the water. The pairing-time appears to be from July to September; for then the male sits in a more open position on the dry branches, and utters a loud sweet note, which may be rendered *dūi-dūi-dūi-dūi-dūi*, and which can be heard a long distance off. This pretty species

seldom climbs like a Nuthatch, is not easy in its movements, having a short, quick, noisy, and jerky flight. It appears to breed in natural holes, or in ones made by itself; at least I have seen it several times go out of holes in the branches and fissures of old stems. Its food consists of insects, larvæ of *Cerambyx*, and ants. I have also found vegetable remains in the stomach."

We are indebted to the kindness of Professor Barboza du Bocage for the loan of the specimen of this Barbet, from which our description and figure have been taken. It was obtained by Rüppell during his voyage in Abyssinia in 1834, and is now in the Lisbon Museum.

BARBATULA ATROFLAVA.
BARBATULA BILINEATA.

BARBATULA ATROFLAVA.

(THE BLACK AND YELLOW BARBET.)

Bucco atroflavus	(1805) Blumenb.; Abb. nat. Geg. t. 65.
La Barbion à dos rouge	(1806) Le Vaill. Barbus, No. 57.
Bucco erythronotus	(1817) Cuvier; Règn. An. p. 428.
Megalaima atroflava	(1846) G. R. Gray; Gen. of B. II. p. 430.
Barbatula atroflavus	(1850) Bonap.; Consp. Av. I. p. 145.
„ *atroflava*	(1851) Strickland; Contr. Orn. p. 135.
„ *erythronotus*	(1851) Verreaux; Rev. de Zool. p. 262.

B. sexibus similibus: uropygio rubro: supra nitenti-nigra.

Hab. in Africâ occidentali.

Sexes alike; upper plumage and sides of the face metallic blue-black; lores and a line below the eye white; rump bright scarlet; quills and tail brownish black; the lesser wing-coverts broadly tipped with yellow; the greater wing-coverts and the secondaries narrowly edged, and the tail-feathers thinly pencilled with the same colour; a superciliary ray and a line along the cheeks yellow; throat bright yellow; the rest of the under surface pale greenish yellow; bill black; rictal bristles strongly developed; legs and feet plumbeous; wing 2″·25.

The young bird wants the bright yellow of the throat, and has the upper plumage duller and more edged with yellow.

Hab. West Africa. Liberia, Aguapim, Galam, Gaboon, Moonda (*Verreaux*); Fantee (*Ussher, mus. R. B. Sharpe*).

Additional references.—*Bucco atroflavus*: Sparrm. Act. Suec. XVIII. t. 9; Hartlaub (1841), Rev. Zool. p. 337. *Bucco erythronotus*: Cuv. (1829) Règn. An. p. 458; Lesson (1831), Traité d'Orn. p. 144; Hartlaub (1841), Rev. Zool. p. 337. *Megalaima atroflava*: Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 42; G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 14. *Barbatula atroflava*: Hartlaub (1854), Journ. f. Orn. p. 196; Bonaparte (1854), Consp. Vol. Zyg. p. 12. Sp. 17; Hartlaub (1857), Syst. Orn. W. Afr. p. 172. No. 514; Verreaux (1859), P. Z. S. p. 398. *Barbatula erythronotus*: Strickland (1851), Contr. Orn. p. 135. Sp. 25.

This beautiful little Barbet belongs to the subgroup of *Barbatulæ* which have the upper plumage shining black; and among these it is conspicuous on account of its bright scarlet rump.

It is a rare bird, and seems to be confined to the west coast of Africa. Nothing is known of its habits. We have only seen two specimens, one in immature plumage in the collection of Mr. R. B. Sharpe, the other in the Leyden Museum, from which latter our Plate and description are taken.

BARBATULA BILINEATA.

(THE BRIDLED BARBET.)

Megalaima bilineata	(1850) Sundev.; Œf. af kongl. Vet. Förh. p. 109.
„ „	(1863) Goffin; Mus. P. B. Bucc. p. 43.
„ „	(1868) Gray; Cat. B. M. Capit. p. 15.

B. sexibus similibus: uropygio aurantiaco: major: alaribus sulphureo marginatis.

Hab. in Africâ meridionali.

Sexes alike; upper plumage shining black, with a green tinge; a narrow frontal band, continued down the side of the face, and one over the eye, down the side of the neck, white; these two stripes separated by a broad black band, the latter from the throat, which is white, by a narrow black moustachial streak; rump golden yellow; lesser wing-coverts broadly tipped with sulphur-yellow; greater coverts, wings, and tail brownish black, edged on the outer web with the same colour; under surface pale yellow; flanks grey; tail underneath grey; bill black; legs and feet brownish; wing 2″·5, tail 1″·6.

Hab. Lower Caffraria (*Wahlberg*).

Of this species very few specimens exist; there are none to our knowledge in England; and nothing is recorded of its habits. It belongs to a subgroup which are distinguishable by their shining black backs. In colouring it closely resembles *B. leucolæma* and *B. subsulphurea*, though in size it is a good deal larger. In the present species the rump is golden yellow, and the wings are edged with sulphur-yellow, while the other two have, as will be seen on reference to the figures of them, the former a sulphur-yellow rump, and the latter the wings edged with gold-colour. These three species being so similar, great care will be required in identifying specimens. The only other bird belonging to the subgenus (*B. atroflava*) has a red rump.

Our description and figure in the Plate are taken from a specimen lent to us from the Leyden Museum by Professor Schlegel. There is no other figure of this species extant.

BARBATULA SUBSULPHUREA. B. LEUCOLÆMA

BARBATULA SUBSULPHUREA.

(THE YELLOW-BELLIED BARBET.)

Bucco subsulphureus	(1843) Fraser; P. Z. S. p. 3.
Capito? subsulphureus	(1846) Gray; Gen. of B. II. p. 430.
Barbatula flavimentum	(1851) Verr.; Rev. et Mag. de Zool. p. 262.
„ *subsulphurea*	(1851) Strickl.; Contr. to Orn. p. 131.
Trachyphonus subsulphureus	(1854) Bonap.; Consp. Vol. Zyg. p. 12.
Megalaima subsulphurea	(1863) Goffin; Mus. Pays Bas, Bucc. p. 44.
Megalœma subsulphurea	(1871) Heugl.; Orn. N.-O.-Afr. p. 763, Anm.

B. minor: sexibus similibus: uropygio aurantiaco: alaribus aurantiaco marginatis.

Hab. in Africâ occidentali.

Sexes alike: lores, a line extending below the eyes, and one above them down the sides of the neck yellowish white (pure white in some specimens); upper plumage shining blue-black; wings and tail dull black; rump and edges of the feathers of the quills, wing-coverts, and tail rich golden-yellow; throat white; under surface pale yellow; bill black; irides brown; legs and feet lead-coloured. Length 3″·75, wing 2″, tail 1″·35.

The young bird has the under surface dirty greenish yellow.

Hab. West Africa: Fernando Po (*Fraser*); Gaboon (*Gujon*); banks of the Moonda river (*Du Chaillu*); Fantee (*Sharpe*); river Volta (*Ussher*); Aguapim (*Riis*).

This species has for its distinctive characteristic the rump and edges of the wing- and tail-feathers golden-yellow; this colouring separates it from *B. bilineata* and *B. subsulphurea*, to which it is closely allied.

The Yellow-bellied Barbet was first described by Mr. Fraser, who gives the following account in a paper laid before the Zoological Society in 1843:—

"Irides hazel; bill black; legs deep lead-colour. This bird is like a *Nuthatch* in its

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Additional references.—*Bucco subsulphureus*: Fraser (1843), Zool. Typ. pl. 52. *Barbatula flavimentum*: Strickl. (1851), Contr. Orn. p. 162. *Barbatula subsulfurea*: Hartl. (1854), J. f. O. p. 195, no. 408; id. (1857), Syst. Orn. Westafr. p. 172; Verr. (1859), P. Z. S. p. 398; Sharpe (1871), Cat. Afr. B. p. 16. *Megalaima subsulphurea*: Gray (1868), Cat. Brit. Mus. Capit. p. 15, et (1871) Hand-l. of B. II. p. 176.

habits, being capable of not only running up the trunk of a tree with great agility, but of descending also, head downwards, with equal or even more facility, an act which the *Woodpecker* is, I believe, unable to perform. The tail is short and very soft, and is not used in climbing. Like our European *Sitta*, the downward position seems the most easy and natural. Of the difference of sexes, if any, I am unable to speak; but I have reason to believe the young of this genus differ considerably from the adult. The *Buccos* are stupid and inactive; I have shot three or four from the same tree, one after the other, without disturbing the rest."

The Plate and description were taken from specimens in our own collection, received by Mr. R. B. Sharpe in one of his early consignments from the Fantee country.

BARBATULA LEUCOLÆMA.

(THE WHITE-THROATED BARBET.)

Barbatula leucolaima . . . . . (1851) Verr.; Rev. et Mag. de Zool. p. 262.
Megalæma leucolaima . . . . . (1863) Goff.; Mus. Pays Bas, Bucc. p. 46.

B. sexibus similibus: suprà nitidè nigra: uropygio sulphureo: alaribus sulphureo marginatis.

Hab. in Africâ occidentali.

Sexes alike; lores and a line extending below the eyes and one above them down the sides of the neck snow-white; upper plumage shining blue-black; rump and upper tail-coverts bright sulphur-yellow; wings and tail dull black, all the feathers, including those of the coverts, being edged with sulphur-yellow; throat and upper breast and under surface of the body generally pale lemon-yellow; bill black; irides dark brown; legs and feet lead-colour. Wing 2·0, tail 1·2.

The young bird has the yellow of the under surface washed with cindery grey.

Hab. West Africa: Senegal (*Verreaux*); Gold Coast (*Nagtglas*); Fantee (*Sharpe*); Gaboon (*Verreaux*).

The present species is very nearly allied to *Barbatula subsulphurea*, the sole difference being in the colour of the rump and the edges of the wing-feathers—the former bird having these sulphur-yellow, and the latter golden-yellow.

It appears to be a common bird in the Fantee and Gaboon countries, as numerous specimens have been received from these localities by Mr. R. B. Sharpe.

Additional references.—*Barbatula leucolæma*: Strickl. (1851), Contr. Orn. p. 135; Bonap. (1854), Consp. Vol. Zyg. p. 12; Hartl. (1857), Syst. Orn. Westafr. p. 173; Verreaux (1859), P. Z. S. p. 398; Gray (1868), Cat. Brit. Mus. Capit. p. 15; Sharpe (1869), Ibis, p. 193; Gray (1870), Hand-l. of B. II. p. 176.

The White-throated Barbet runs up and down the trunks of the trees searching for insects in the crevices of the bark, and in appearance much resembles a Piculet.

The figure in the Plate and the description are taken from specimens in our own collection, given to us by Mr. Sharpe.

BARBATULA LEUCOTIS

BARBATULA LEUCOTIS.

(THE WHITE-CHEEKED BARBET.)

Megalaima leucotis	(1850) Sundevall; Oefv. af Kong. Vet. Akad. Förh. p. 109.
„ „	(1863) Goffin; Mus. Pays, Bas. Bucc. p. 48.
„ „	(1867) Layard; Birds of S. Afr. p. 234.
„ „	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 16.
„ „	(1869) Von. der Deck. Reis. in Ost. Afr. p.

B. maxima: gutture brunescenti-nigro, sulphureo haud squamato.

Hab. in Africa meridionali et orientali.

Sexes alike. The head and neck are black, the shafts of the head feathers being stiff and shining, and elongated beyond the webs; the rest of the upper plumage is dull brown. A broad line behind the eyes extending down the sides of the neck, the abdomen, and under wing and tail-coverts, snow white. The sides of the face, throat, and breast are brownish black, the shafts of the feathers of the throat being elongated into fine hair-like bristles; the flanks brown, broadly tipped with white. The rictal bristles of this species are not very strongly developed. The bill is plumbeous black, irides yellow, legs and feet brown. Length 8″, wing 3″.4 inches.

Hab. Southern and Eastern Africa. Lower Kaffraria, (*Wahlberg*); Mozambique (*Peters*); Usanga (*Von der Decken*).

This very rare Barbet is the largest species of the genus *Barbatula*, of which it is an extreme form, approaching closely to *Pogonorhynchus* in shape and general appearance, and to *Gymnobucco* in the outline of the bill. The very sharply defined ridge of the culmen is, to a certain degree, unique, and serves to distinguish it from the others. It is without exception, the most dingily plumaged bird in this family, having no other colours to boast of than brownish-black, and white. The total absence of yellow markings on the upper

plumage is also remarkable, and in this too, it differs from every other species of *Barbatula*. The dark brown throat in another characteristic feature; and altogether this bird appears to have some claim to separate generic rank, which may possibly some day be accorded to it. Monsieur Jules Verreaux in a paper on the African Barbets, in 1859, gives it as synonymous with *Pogonorhynchus unidentatus;* but this is an evident mistake, the latter bird having a scarlet forehead.

The white cheeked Barbet was originally named by Prof. Sundevall, from specimens from Kaffraria. Its occcurrence in Mozambique has been recorded by Dr. Peters. A specimen was obtained in October, 1862, by the late Baron Von der Decken, at Usanga; and these are the only records we can find of its capture.

Our plate and description are taken from a specimen belonging to the Leiden Museum, which was brought by Wahlberg from lower Kaffraria. It is to the kindness of Professor Schlegel that we owe the use of the specimen, and are thus enabled to figure, we believe for the first time, this scarce species.

PSILOPOGON PYROLOPHUS.

PSILOPOGON PYROLOPHUS.

(THE FIRE-TUFTED BARBET.)

Psilopogon pyrolophus	(1835) Müller; Tijdsch. v. Nat. Gesch. II. p. 339.
Bucco pyrolophus	(1836) Temm.; Pl. Col. pl. 597.
Buccotrogon torquatus	(1852) V. Kreling; Jahr. Nat. Gesch. Emden, p. 20.
Pseudobucco pyrolophus	(1849) Des Murs; Encyc. H. N. II. p. 24.
Megalaima pyrolopha	(1863) Goffin; Cat. Mus. Pays Bas, Buc. p. 37.

Ps. sexibus similibus, viridis, setis densis post nares nigris coccineo latè marginatis, fronte nigrâ, occipite brunneo.

Hab. in insulâ "Sumatra" dictâ.

Sexes alike; general plumage green; forehead, a spot in front of the eye, and sinciput, velvety black; a white band across the top of the head; occiput, nape, and sides of the neck rich dark brown, with a streak of light green along the sides of the occiput; upper plumage rich dark green; quills brown, inner webs at base, and exterior edge of the primaries, yellowish white; sides of the face cindery grey; ear-coverts tipped with pale yellow; chin and a broad band across the breast velvety black; throat grass-green, a band of golden yellow separates the black from the green; under surface bright grass-green with a golden tinge; tail underneath greenish blue; the rictal bristles, which are strongly developed in two large bunches over the nostrils, are red, with the basal half black; bill yellowish green, with a black band across the centre; irides bright brown; legs and feet greenish; wing 4″·5, tail 4″·4.

Hab. Sumatra (*Müller*).

This beautiful Barbet at present stands alone in a genus of its own. It is most nearly allied to *Megalæma*; but on account of its differently formed bill, with the extraordinary

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Additional references.—*Bucco pyrolophus*: Hartlaub (1841), Rev. Zool. p. 337. *Psilopogon pyrolophus*: Gray (1846), Gen. of Birds, II. p. 429; Eyton (1850), Contr. Orn. pl. 54; Eyton (1867), Osteol. Av. p. 46; G. R. Gray, (1868), Cat. Brit. Mus. Capit. p. 18.

development and colouring of the facial bristles, and its long tail, we have retained for it the generic name given by the discoverer, Müller. Temminck, in his 'Planches Coloriées' (*l. c.*), states that its habits and food are the same as those of the other Barbets; the latter consists of all kinds of wild berries, especially figs, to which all birds of this family are very partial. It is a remarkably stupid bird, and allows itself to be closely approached, and falls an easy prey to the collector. No difference has been observed in the plumage of the sexes. They are said to be common in the districts where they are found; but as they are very locally distributed, and rarely wander far, specimens are not often brought to this country, and it is still considered a very rare bird.

The skeleton does not appear to differ from that of a *Megalæma*; there is a good figure of one to be found in the 'Contributions to Ornithology.'

Temminck figured this bird, when it was first discovered by Müller, in his 'Planches Coloriées.'

Mr. A. R. Wallace lent us a specimen which he obtained during his travels in Sumatra; and from this our Plate and description have been taken.

GYMNOBUCCO CALVUS.

GYMNOBUCCO CALVUS.

(THE BALD-HEADED BARBET.)

Bucco calvus	(1841) Lafresn.; Rev. Zool. p. 241.
Megalaima calva	(1846) G. R. Gray; Gen. of Birds, ii. p. 429.
Gymnobucco calvus	(1854) Hartl.; Cab. Journ. Orn. p. 195.
„ *peli*	(1857) Hartl.; Syst. Orn. W. Afr. p. 174.
Gymnocranus calvus	(1860) Heine; Cab. Journ. Orn. p. 191.
„ *peli*	(1860) Heine; Cab. Journ. Orn. p. 191.
Megalaima calvus	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 16.
„ *peli*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 16.

♂. G. terricolor, olivaceo lavatus: setis densis post nares flavescenti-brunneis: capite calvo.

♀. Mari similis, sed setis post nares deficientibus.

Hab. in Africâ occidentali.

Male.—Head of a dark blue colour, entirely bare, with a few black bristles here and there; upper plumage earthy brown, washed with an olivaceous tinge; under surface lighter brown; bill reddish yellow, bluish at the base; there is a bunch of stubby yellowish-brown bristles behind each nostril, a smaller one at the base of the lower mandibles and under the chin; irides reddish yellow; legs and feet blackish. Wing 3″·1, tail 1″·85.

Female.—Same as the male in colour, but wants the bristles behind the nostrils, and the other ones are hardly visible.

Hab. West Africa. Dabocrom (*Pel*); Fantee (*Sharpe*); Gaboon (*Verreaux*).

The Bald-headed Barbet comes from the Gaboon and Fantee countries; it was first described by Lafresnaye in 1841. In 1857 Hartlaub described another species of this genus

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Additional references.—*Bucco calvus*: Hartlaub (1841), Rev. Zool. p. 337; Bonaparte (1854), Consp. Volucr. Zyg. p. 12. *Megalaima calva*: Goffin (1863), Cat. Mus. Pays-Bas, Bucc. p. 49. *Gymnobucco calvus*: Hartlaub (1857), Syst. Orn. W. Afr. p. 174, no. 519; Verreaux (1859), P. Z. S. p. 397; Sharpe (1871), Cat. Afr. B. p. 16. *Gymnobucco peli*: Verreaux (1859), P. Z. S. p. 327; Sharpe (1869), Ibis, p. 193.

as *G. peli*; as there does not seem to be any good specific difference, we have, after a close comparison of the types, adopted the latter as a synonym of *G. calvus*. The only other known species (*G. bonapartei*) has the top of the head feathered. Their food consists principally of insects and their larvæ. They migrate during the cold months. The female, as will be seen by the accompanying Plate, has no bristles behind the nostrils.

The figures are taken, the male from specimens from Fantee, in our own collection, the female from one in the British Museum.

GYMNOBUCCO BONAPARTEI.

GYMNOBUCCO BONAPARTEI.

(THE DUSKY BARBET.)

Gymnobucco bonapartei	(1855) Verr.; Journ. f. Orn. p. 201.
„ „	(1855) Hartl.; Journ. f. Orn. p. 263.
Barbatula fuliginosa	(1855) Cass.; Proc. Ac. Nat. Sc. Phil. p. 324.
„ „	(1856) Bonap.; Compt. Rend. p. 17.
Gymnocranus fuliginosa	(1860) Heine; Journ. f. Orn. p. 191.
„ *bonapartei*	(1860) Heine; Journ. f. Orn. p. 191.
Megalaima bonapartei	(1863) Goffin; Mus. P. B. Bucc. p. 51.

♂. G. terricolor, olivaceo lavatus: capite summo plumato: setis densis post nares flavicanti-brunneis.
♀. Mari similis sed setis post nares nullis.

Hab. in Africâ occidentali.

Male.—General plumage dark earthy-brown, washed with an olivaceous tinge; the shafts of the feathers somewhat paler; the feathers of the head stiff, lanceolate, and fawn-coloured; the nape washed with cindery-grey; tail greyish black; throat grey; the sides of the head rather bare and reddish; bill horny-brown; rictal bristles soft and black; a thick bunch of yellowish bristles behind each nostril resembling a small paint-brush, and smaller bunches at the base of the mandible and under the chin; irides reddish yellow; legs and feet black.

The female wants the bunches of yellowish bristles, but is otherwise similar to the male.

Hab. West Africa. Gaboon (*Verreaux*, *Hartlaub*); banks of the Camma River (*Duchaillu*).

Very little is known of this peculiar bird, which is easily to be recognized from the only other species of this genus, *G. calvus*, on account of its feathered head, which is totally

Additional references.—*Gymnobucco bonapartei*: Hartl. (1857) Syst. Orn. W. Afr. p. 175; Verr. (1859) P. Z. S. p. 397. *Megalaima bonapartei*: Gray (1868), Cat. Brit. Mus. Capit. p. 17.

bare in the last-named bird. The present species has the cheeks denuded of feathers, and only a few bristles over the ears. In colouring they are very similar, being earthy-brown with an olivaceous tinge. The distinguishing feature which separates these two species is the thick tuft of coarse yellowish bristles behind each nostril in addition to the rictal bristles.

Mons. Jules Verreaux was the first to describe the Dusky Barbet. He obtained it from the Gaboon country, and gives the following note on the subject:—

"This species is found in numerous flocks in the smaller woods, a short distance from the Gaboon coast; they feed on insects and their larvæ, and migrate during the winter months; they are dull, stupid birds, and not at all shy."

This is one among several rare Barbets which Professor Schlegel permitted us to bring to England, from the Leyden Museum, to describe and figure in this work. No plate of this species has been given before.

TRACHYPHONUS CAFER.

TRACHYPHONUS CAFER.

(LE VAILLANT'S BARBET.)

Le Promepic	(1807) Le Vaill. Prom. p. 77, t. 32.
Picus cafer	(1818) Vieill. N. Dict. XXVI, p. 102.
Cucupicus cafer	(1828) Less. Man. d'Orn. II, p. 116.
Trachyphonus cafer	(1854) Bonap. Consp. Vol. Zyg. p. 12.
Capito cafer	(1862) Goff. in Schl. Mus. Pays Bas, Buccones, p. 65.
Trachyphonus Vaillantii . . .	(1821) Ranz. Elem. di Zool. Ucc. pt. II, p. 159.
Capito Vaillantii	(1841) Gray, List of Gen. of B. p. 69.
Micropogon sulphuratus . . .	(1836) Lafr. Mag. de Zool. pl. 60.
Pollystictice quopopa	(1836) Smith, Rep. Exp. Expl. Centr. Afr. p. 40.

Tr. cristâ occipitali nigrâ magnâ: dorso nigro.

Hab. in Africâ meridionali.

Entire head brilliant chrome yellow, each feather edged with crimson at the tip, this latter colour predominating on the cheeks; back of the head, nape, and a large occipital crest glossy blue-black; a spot on the ear-coverts black tipped with white; upper part of the back, scapulars and wing-coverts glossy blue-black banded with pure white; lower part of the back and rump black washed with rich chrome-yellow, this colour alone shewing on the rump; upper tail-coverts rich crimson; quills brownish-black, grey at the base of the inner web, the outer web spotted with white; tail black, in some lights appearing very distinctly barred, all the feathers broadly tipped and sparsely spotted with white; chin white; throat chrome tipped with crimson, and shading into beautiful lilac on the breast; a band of black across the upper part of the breast with a few spots of lilac; rest of the breast white, passing on the lower part into chrome streaked with crimson; flanks and abdomen chrome; bill pale green, blackish at the tip; legs and feet dull brown; orbital skin blackish.

Additional references.— *Trachyphonus cafer*, Verr. P.Z.S. 1859, p. 399; Newton, Ibis, 1868, p. 298; Gray, Cat. Capit. Brit. Mus. p. 17; Bocage, Jorn. Acad. Lisb. 1869, p. 349. *Capito Vaillantii*, Layard, B. of S. Afr. p. 235 (1867).

Hab. Angola; Huilla (*Anchieta*), Namaqua Land (*Le Vaillant*), Kurrichaine (*Smith*), Mosilikatze's Country (*Verreaux*), Cape Colony (*mus. Brit.*), Kaffraria (*Lesson*), Natal (*Ayres*), Transvaal (*Ayres*), Tette (*Livingstone*).

Le Vaillant's Barbet is the largest species, as well as the type of the genus *Trachyphonus*. From all its allies it may easily be distinguished by well-marked characters, as for instance: from *T. purpuratus* and *T. Goffini* by its occipital crest, which is wanting in both these birds; and from *T. margaritatus* and *T. squamiceps* by the colour of the back which is earthy-brown, whereas in the present species it is metallic black. It is by far the handsomest of all the African Barbets.

Goffin in his catalogue of the "Buccones" in the Leiden Museum has already drawn attention to the fact that this bird must bear the name of *Trachyphonus cafer* (Vieill.), and is certainly not identical with the *Picus cafer* of Gmelin, an error apparently initiated by Vieillot and followed by several subsequent authors.

There are three specimens of this Barbet in the British Museum—one from the Cape of Good Hope, and two collected, during Dr. Livingstone's expedition, at Tette. These two last-mentioned birds are much smaller than the Southern bird, the bill is stouter and the culmen more arched, the yellow of the face and lower parts clearer and purer and there is less trace of scarlet on the breast. These differences, however, are probably due to age, and we do not feel justified in separating the Tette bird as a distinct species. The following measurements will shew the difference in size:

No.	Locality.	Wing.	Tail.	Tarsus.	Bill.
1	Transvaal (*Ayres*).	4·30	4·0	1·10	·90
2	Cape Colony (*mus. T. C. Eyton*).	4·0	3·8	1·10	
3	„ (*mus. Brit.*).	3·9	3·9	1·10	·85
4	Tette (*Livingstone*).	3·45	3·4	1·10	·80
5	„ „	3·65	3·75	1.05	·80

The plumage of the body is soft and rather loose, and the feathers of the forehead and cheeks are more or less scaly and stiff at the tips.

According to Le Vaillant, *Trachyphonus cafer* "frequents the forests, where it feeds on "insects and on their larvæ, which it seeks among the moss and crevices in the bark of trees, "against the trunks of which it clings without climbing. Its call is harsh, resembling the

"syllables 'cral, cral,' repeated several times, and is uttered when the bird is disturbed or "preparing to fly."

Mr. Gurney has very kindly given us the following note on the habits of the present bird. They accompanied a specimen sent by Mr. Thomas Ayres from Potchefstroom to Mr. Gurney :

" This specimen was shot amongst the trees on the banks of the river Hemipopo, and " was apparently a solitary bird. It proved on dissection to be a male, and the stomach " contained insects and fruits. The bill when fresh was pale green."

Our plate, description, and measurements, are taken from a fine specimen in Mr. R. B. Sharpe's collection, from Transvaal.

TRACHYPHONUS MARGARITATUS (Lath.) 2 1/2

TRACHYPHONUS MARGARITATUS.

(THE PEARL SPOTTED BARBET).

Bucco margaritatus	(1826) Rüppell, Atlas zu der Reise im Nörd. Afrika, Vögel, p. 30.
Tamatia erythropyga	(1828) Ehrenberg, Symbolæ Physicæ, Aves, t. 7.
Lypornix erythropyga . . .	(1829) Wagler, Isis, p. 658.
Micropogon margaritatus . . .	(1830) Temminck, Pl. Col., No. 490.
Polystycte margaritata . . .	(1835) Smith, S. African Journal.
Micropogon margaritaceus . . .	(1839) Temminck, Table Méthodique des Planches Coloriées, p. 55.
Capito margaritatus	(1840) G. R. Gray's Genera of Birds, Vol. II, p. 430.
Trachyphonus margaritatus . . .	(1850) Bonaparte, Conspectus Avium, I, p. 142.
,, ,, . . .	(1861) Von Heuglin, Ibis, p. 164.
Capito margaritatus	(1863) Goffin, Museum des Pays-bas, Buccones, p. 67.
Trachyphonus margaritatus . . .	(1868) G. R. Gray's Catalogue of British Museum, Capit., p. 17.

T. supra terricolor, albo punctatus; subtus haud squamatus, occipite cristato.

Hab. in parte occidentali et sept-orientali regionis Æthiopicæ.

Description. ♀. Forehead, top of the head, and occipital crest, shining metallic black, sides of the head, nape, throat, and breast, brilliant yellow; the feathers of the nape and sides of the neck tipped with black, ear-coverts silvery white, back, shoulders, and wing-coverts, earthy brown, each feather terminating in a round white spot giving the pearl-spotted appearance from which the bird derives its name; the brown of the back fades into dirty yellow on the lower back and rump; the quills are brown like the back, the first and second primaries pure brown; the third with three, and the remainder with five quadrangular whitish spots on the outer web, the secondaries and cubitals are similar, but the spots are rounder; the upper and lower tail coverts scarlet, the tail blackish brown, long and slightly rounded, the outer pair of feathers barred with yellowish white, the remainder spotted with the same colour on the outer web, the spots lessening in size towards the centre pair, which are unspotted in adult specimens; a black metallic spot in the centre of the yellow on the breast; the lower feathers of the breast barred with white and brown, and some of them washed with scarlet, forming a narrow but distinct gorget, separating the deep yellow of the breast from the paler colour of the abdomen; abdomen, sides, and vent, dirty yellowish white.

♂. According to Temminck in his 'Receuil des Oiseaux', the female is duller in colouring than the male and wants the black spot. We have reason to believe that these characters belong rather to the immature bird, and that the only difference between the sexes is that the female is slightly the smaller. A bird brought home this winter by Mr. J. Keast Lord, labelled male by dissection, has the spot, but we have not seen a sufficient series of properly ticketed birds to set the matter at rest.

Iris silver gray (*Keast Lord*) violet (*Schlegel*) legs and feet brown, beak red. Front of the tarsus with six large shield-like scales.

Habitat. North Eastern Africa, Abyssinia and Sennaar, (*Rüppell*) Cordofan (*Ruysoenaers*), Nubia (*J. Keast Lord*), North East Africa (*Von Heuglin*).

The habits of this bird are better known than the other representatives of the genus, but very little, as regards its anatomy and internal structure, has been put on record by the African observers. It resembles closely in appearance *T. squamiceps*, but the points of difference are shown in the description of the latter bird, which is rarer and a more recent addition to ornithology. It possesses the power of climbing like the rest of its congeners, and in its manner of nidification also shows an affinity to the Wood-peckers; so much so that Mr. J. Keast Lord in describing the specimen brought home by him from Nubia, said, "I found this bird at Harkiko, and first saw it climbing on the trunk of one of the giant "cactus trees. I shot it under the impression that it was a Wood-pecker, and did not find out "my mistake till I had the bird in my hand, when it proved to be a male in full plumage "of *T. margaritatus*. This was the only one I saw, so that I conclude it is a rare bird."

Dr. Von Heuglin in the "Ibis" for April 1861, says "*T margaritatus* is common in "the Bajuda Steppes, along the banks of the Nile South of Berber 17°, Long., Kordofan, "Sennaar, Tàkà, and in the Abyssinian and Somali coast lands. It is very widely diffused "in Eastern Africa; the male is somewhat larger than the female."

According to Dr. Rüppell, this bird frequents the dense foliage of the higher trees, and its note is loud and sonorous.

In the "Ibis" (Vol. III., p. 122), Von Heuglin gives the following account of its nidification and habits:—"Its note is loud and melodious, it feeds on berries, fruits, and insects, "which it gathers leaping from branch to branch; its flight is unsteady and rapid, a series "of undulating movements. I have never seen one of them on the ground; it lays from "four to six white eggs in September. The young remain together after they have left "the nest, and I have often noticed them in the months of October and November in their

" immature plumage, huddled together on the branch of a tree, waiting for the arrival of " their parents. I have kept them for some time in a cage, and fed them on raw meat and " boiled eggs. On the 26th of September I found a nest of *T. margaritatus* in the vertical " bank of a ravine, cut away by the floods in the stiff soil during the rainy season. It was " about eight or nine feet up, near the top of the bank, a circular hole about two and a half " inches in diameter, led through a passage about two feet long, and slightly inclined " upward, into a rounded space, separated from the gallery by a small kind of ditch. " There was a single egg, deposited on the bare earth, in the interior of this space without " any foreign material interposed as lining. It was of an oval form, rather small for the " size of the bird, rather obtuse at both ends, of a pure white colour with a delicate rose " coloured tinge in the light. On the 8th October I found another nest, containing four " eggs, in a similar locality. They were shorter than those described above, and had " become almost milk white by incubation. I am unable to say for certain whether the " bird digs the hole for itself; there were several similar holes in the neighbourhood, one " containing the abode of a species of 'Accomys,' which probably digs the hole, and the " birds afterwards prepare and modify according to their wants."

The average dimensions taken from skins that we have examined give, wing, 3.3 to 3.6 inches ; tail, 3.5 to 3.8 inches; bill, 8.5, a long gape 1.25 ; tarsus, 1.05.

The plate is taken from skins in the collection of Mr. R. B. Sharpe, said to be from Abyssinia, one wanting the black breast spot, the other having it fully developed. The figures are of the size of life.

J. G. Keulemans del. & lith.

TRACHYPHONUS SQUAMICEPS

TRACHYPHONUS SQUAMICEPS.

(LESSER PEARL-SPOTTED BARBET.)

Trachyphonus squamiceps	(1857) Heugl. Syst. Uebers, p. 47.
,, ,, ...	(1857) Hartl. Orn. W. Afr. p. 176, *note*.
,, ,, ...	(1861) Heugl. Ibis, p. 125.
,, ,, ...	(1868) G. R. Gr. Cat. Brit. Mus. Capit. p. 18.
Capito squamiceps	(1863) Goffin, Mus. Pays Bas. Bucc. p. 70.

T. sexibus similibus: minor: suprà terricolor, albo punctatus: occipite cristato: subtus squamatus.

Hab. in Africa septentrionali-orientali.

Sexes alike; entire head, which is fully crested, black; the feathers are elastic and hornlike in structure and barred with fiery yellow; back and wings earthy brown, with round cream coloured spots near the tip of each feather; these spots are only on the exterior web of the primaries and secondaries; their inner webs are pale yellowish at the base; the lower back and rump earthy brown, barred with sulphur yellow; upper tail-coverts sulphur yellow. The tail is dark brown, long, and slightly rounded, the outer pair of feathers barred, the remainder spotted with yellowish white, the spots lessening towards the centre pair. The cheeks, throat, and breast are sulphur yellow, each feather tipped with a small round black spot, the throat is washed with scarlet, a few feathers in the centre of the breast barred with black, forming an irregular spot; the abdomen and vent are pale yellow, indistinctly speckled with light brown; flanks and under wing-coverts grey, under tail-coverts bright scarlet. Bill ashy flesh cobalt, irides brown. Legs and feet plumbeous. Wing 2·6, tail 2·8, length 6 inches.

Hab. North Eastern Africa; Western shore of the Bahr-el-abiad (*Heuglin*).

This beautiful little Barbet is a comparatively recent addition to the known species of this family. It was discovered by Dr. von Heuglin in Eastern Africa, and according to his account, its habits are sociable, and its breeding and food the same as those of *P. diadematus.*

This species is most nearly allied to *T. margaritatus*, from which the following characteristics will serve to distinguish it at once. It is a much smaller bird, the elastic hornlike structure of the feathers is still more developed; the face is fiery yellow; on the point of each of the feathers of the throat is a metallic steel-black spot, the back and tail-coverts are greyish green, the under parts bright greenish-yellow, barred with indistinct wavy black lines.

The specimen from which our plate and description was taken forms part of the collection of Mr. T. C. Eyton, who most obligingly lent it to us for figuring in the present work. The species is also in the Leiden Museum.

TRACHYPHONUS COFFINI

TRACHYPHONUS GOFFINI.

(THE GLOSSY BARBET.)

Capito goffini	(1863) Schlegel; Mus. Pays Bas, Bucc. p. 72.
Trachyphonus goffini	(1868) G. R. Gr. Cat. Brit. Mus. Capit. p. 18.
,, *purpuratus*	(1869) Sharpe; Ibis, p. 386.

T. sexibus similibus: supra niger: uropygio sulphureo marginato: hypochondriis omnino sulphureis, immaculatis.

Hab. in Africâ occidentali.

Sexes alike. Forehead, top of the head, cheeks, and sides of the neck dark crimson, occiput, nape, back and shoulders dull black, each feather broadly margined with metallic blue-black; lesser wing-coverts pure white; wings and tail brownish black; rump, and upper tail-coverts, black, broadly edged, and mottled, with sulphur yellow; ear-coverts and chin black; throat, and upper breast black, the feathers, which have the webs divided at the tip, being broadly edged with purplish white, except the lowest row which are tipped with dark crimson, forming an indistinct band across the breast; the rest of the under-surface is sulphur yellow, the base of the feathers grey. Beak yellow; orbital skin black; legs and feet dark plumbeous. Length 9″, wing 4″.

Hab. Gold Coast (*Nagtglas*). Fantee, (*Ussher; mus. R. B. Sharpe*).

This species was first separated from *T. purpuratus* by Professor Schlegel, and though nearly allied it has distinctive characteristic markings, which make it easy to distinguish it, at a glance, from the above mentioned species. The most noticeable of these differences are, the pure yellow under surface, and the yellow banded upper tail-coverts, as well as the black orbital skin.

It is apparently a commoner bird that *T. purpuratus*. Mr. Sharpe has received a

number of specimens during the last two years, from the Fantee country. In the last collection, sent by Governor Ussher, from Fantee, there were specimens of the young bird, which, thanks to Mr. Sharpe, we have been able to figure in the accompanying plate. Mr. Ussher, in a letter sent with the collection remarks, that these Barbets (*T. goffini*) run up and down the trunks of the palm trees; and from the observations he has made, resemble very much the "*Picidæ*" in their habits and movements. Their nidification and food is exactly the same as that of *T. purpuratus;* and these two as it were form a sub-group of the genus *Trachyphonus*, *T. cafer* being the link between them and the scaly-headed Barbets, *T. margaritatus* and *T. squamiceps*. It will be seen by the plate that the young bird differs very little from the adult, being in this point an exception to the general rule in this family. Two of the figures are taken from specimens in our collection given to us by Mr. Sharpe, the third figure, of which a description is furnished, from Professor Schlegel's type specimen in the Leiden Museum.

No other figure of this Barbet is extant, as far as we know.

TRACHYPHONUS PURPURATUS.

TRACHYPHONUS PURPURATUS.

(THE PURPLE BARBET.)

Trachyphonus purpuratus	(1851) Verr. Rev. et Mag. de Zool. p. 260.
,, ,, ...	(1851) Strickl. Contr. Orn. p. 135.
,, ,, ...	(1854) Bp. Consp. Volucr. Zyg. p. 12, sp. 24.
,, ,, ...	(1854) Hartl. Journ. f. Orn. p. 195, No. 407.
,, ,, ...	(1857) ,, Syst. Orn. West Afr. p. 175, No. 522.
,, ,, ...	(1859) Verr. P. Z. S. p. 399.
,, ,, ...	(1861) Heugl. Ibis, p. 164.
,, ,, ...	(1868) G. R. Gr. Cat. Brit. Mus. Capit. p. 18.
Capito purpuratus	(1863) Goffin, Mus. Pays Bas. Bucc. p. 71.

T. sexibus similibus: suprà niger: uropygio omnino nigro: hypochondriis nigris, sulphureo punctatis.

Hab. in provinciâ Gabonensi Africæ occidentalis.

Sexes alike; forehead, top of the head, and a narrow stripe down each side of the neck, dark crimson; occiput, nape, back, and shoulders, dull black, broadly margined with metallic blue-black; lesser wing-coverts pure white; wings and tail, brownish black; in some specimens a few of the feathers of the upper tail-coverts are narrowly pencilled at the tip with sulphur yellow; throat and upper breast, the feathers of which have a lanceolated appearance, the web being divided at the tip, black, with broad silver-grey tips; below this is a narrow but distinct band of fiery red; breast yellow; flanks and the rest of the under-surface jet black, with large drops of yellow at the tips of the feathers. Beak yellow, orbital skin yellow, legs and feet dark plumbeous. Length 9″, wing 4″, tail 3.″8, tarsus 1″.

Hab. Gaboon, near the Camma and Moonda rivers (*Duchaillu*).

This species is nearly allied to *T. goffini*, from which, however, it is not difficult to distinguish it, on account of its conspicuous black flanks, with round yellow spots and the naked yellow orbital skin. A further distinctive character is the fiery red band across the

breast, The want of an occipital crest, separates it at once from the three other known species of this genus. It is a much rarer bird than *T. goffini.*

It was observed on the banks of the rivers Moonda and Camma, in Western Africa, by Duchaillu. He states that they frequent the forests in small flocks, and feed on fruits and insects.

Our plate and description are taken from an adult specimen, belonging to the Leiden Museum, and lent to us by Professor Schlegel.

CAPITO MACULICORONATUS. ♂ & ♀

CAPITO MACULICORONATUS.

(LAWRENCE'S BARBET).

Capito maculicoronatus . . . . (1861) Lawrence, Ann. Lyc. of N. H., New York, Vol. III, p. 300.

Capito maculicoronatus . . . . (1862) Sclater, Ibis, Vol. IV, p. 1.

♂ C. sexibus dissimilibus. Supra niger; pileo, nuchâque flavescenti-brunneo maculatis. Subtus limonaceo-albus; pectore aurantiaco suffuso; lateribus nigro maculatis.

♀ Mari similis; gutture toto et pectore nigerrimis.

Hab. In Isthmo Panamensi.

Description. Male. Shining black, feathers of the occiput and nape yellowish brown laterally edged with brown; quills brownish black, inner web margined with creamy white; under parts pale lemoney white; the breast washed with a golden colour which forms a gorget; the feathers of the flanks centred with black, and the longer ones tipped with yellow and scarlet; tibial plumes black on the exterior, yellowish-white on the interior. Bill, dark horny, with a yellow spot in front of the nostrils; base of the lower mandible paler; legs and feet black; irides brown.

Female. The female differs from the male in having the feathers of the upper parts suffused with brown, and the whole of the throat and breast deep black.

Hab. Panama (*McLeannan*).

This species is but little known, being apparently confined to the Isthmus of Panama, and not common even there. Mr. Sclater in describing it in the Ibis says, "I confess I "should rather have supposed the black throated bird of this singular pair to be the male, "but Mr. Lawrence, in answer to inquires on this point, assures me that his description of "the sexes (which I have followed) is correct."

The following is an extract of a letter from Mr. Lawrence to Mr. Sclater:—

" New York August 14th, 1861.

" Since my description of this species I have received from Messrs. McLeannan and J .R. " Galbraith a fine collection of birds, made for me during the past winter on the Isthmus of " Panama, with such observations as they were able to make, one male and two females " were the only specimens that were procured of this species, and the following short note " the only information that is given of it."

" Irides brown. Not often met with. Found on high trees. Length 7 inches."

In a later letter to the same gentleman Mr. Lawrence says:—

November 17th.

" The sexes of the *Capito* are without doubt correctly given, I have seen Mr. Galbraith " in reference to this point. He states that his determination of the sexes was made in all " cases by dissection, that he particularly remembers this species and is positive as to his " specimens being correctly marked."

Mr. Sclater gives the following measurements :– Length, 6.3 ; wing, 3.2 ; tail, 2.2

The specimens figured in the accompanying plate were lent to us by Mr. Osbert Salvin, they were obtained in Panama by Mr. McLeannan. The measurements correspond with those given by Mr. Sclater. The female in Mr. Salvin's collection has the feathers of the crown much darker than the male bird. Those belonging to Mr. Sclater are vice versâ.

CAPITO [illegible] VIRENS ♂ ♀

CAPITO AUROVIRENS.

(THE GOLDEN-GREEN BARBET.)

Le Barbu oranvert	(1806) Le Vaillant, Barbus, text.
Bucco aurovirens	(1829) Cuvier, Régne Animale, I, p. 458.
Micropogon aurovirens . . .	(1806) Le Vaillant, Barbus, Supplement E.
,, ,, ...	(1837) Bonaparte, P.Z.S., p. 120.
Capito aurovirens	(1840) G. R. Gray, Genera of Birds, II, p. 430.
Eubucco aurovirens	(1850) Bonaparte, Conspectus Avium, I, p. 142.
Capito aurovirens	(1861) Sclater, Ibis, Vol. III, p. 187.
,, ,, ...	(1863) Goffin, Museum Pays-bas, Buccones, p. 58.
,, ,, ...	(1868) G. R. Gray, Catalogue of the British Museum, Capit., p. 21.

♂ C. virescenti-fusous pileo, coccineo, pectore læte aureo.

Fem. pileo concolore distinguenda.

Hab. In regione Neotropicâ.

Description. Male. Body, greenish brown, paler below, and at tips of quills; entire top of the head rich red, the chin whitish, the throat and breast deep golden yellow.

Bill black, leaden colour at the base of the lower mandible, irides red, legs and feet plumbeous.

Female. Top of the head greyish white, in other respects similar to male.

Hab. Ecuador and Rio Napo (*Jameson*), Valley of the Ucayali (*Hauxwell*), Peruvian Amazons; Nauta (*Bartlett*).

The plate is drawn from specimens in Mr. O. Salvin's collection, and represents the male and female. Of its habits nothing is on record at present, though it was named by Cuvier as early as 1829.

The dimensions taken from dried skins are as follows :—Wing, 3.3; tail, 2.5 ; bill at front, 8; tarsus, 1 inch.

Mr. Bartlett, who has lately shot this bird at Sarayacu, has kindly supplied us with the following note :—" *C. aurovirens* is common at this place. They always perch on the " tree tops, and at intervals utter a thin short call ; in doing so they bend forward, swell " out the throat, and erect the tail over the back. Their note resembles that of a dove. " In habits, structure, appearance, and especially in the mode of erecting the tail, they " appear closely allied to the *Ramphastidæ* or Toucans."

CAPITO NIGER.

CAPITO NIGER.

(THE RED-THROATED CAYENNE BARBET.)

Bucco cayennensis nævius	(1760) Briss.; Ornith. IV. p. 97, pl. vii.
„ *niger*	(1776) Müller; Syst. Nat. Suppl. p. 89.
„ *maculatus*	(1776) Müller; Syst. Nat. Suppl. p. 89.
„ *erythrocephalus*	(1783) Bodd.; Tab. Pl. Enl. p. 12.
Barbu de Cayenne	(1783) Buffon; Pl. Enl. VII. no. 206.
Bucco cayennensis	(1788) Gmelin; S. N. I. p. 406.
Le Barbu de la Guyane	(1806) Levaill.; Barbus, pls. 23, 24, 25.
Le cabezon à tête et gorge rouges	(1816) Vieillot; N. Dict. d'Hist. Nat. p. 500.
Capito rubricollis	(1823) Vieillot; Enc. Méth. p. 1426.
Micropogon cayennensis	(1830) Temm.; Pl. Col. Texte, p. 83.
„ *nævius*	(1830) Temm.; Pl. Col. Texte, p. 83.
Capito erythrocephalus	(1846) Gray; Gen. of Birds, II. p. 430.
„ *nævius*	(1846) Gray; Gen. of Birds, II. p. 430.
Eubucco erythrocephalus	(1857) Sclater; P. Z. S. p. 268.

♂. Major: rostro plumbeo: suprà niger sulphureo variegatus: fronte guttureque coccineis: pectore immaculato.

♀. Mari similis sed suprà flavescenti-albo variegata, guttureque pectoreque nigro maculatis.

♀ juv. Similis adultis sed gutture haud maculato.

Hab. in regione Neotropicâ.

Adult Male.—Forehead, sinciput, moustachial stripe and entire throat rich red; top of the head shining yellow; occipital feathers brown, edged with the same yellow colour; sides of the head, neck, and upper plumage glistening black, the latter variegated with pale yellow on the upper back, deeper yellow on the lower back and upper tail-coverts; the greater wing-coverts black, each feather having a large cream-coloured spot on the

Additional references.—*Bucco cayennensis*: Latham (1790), Ind. Orn. p. 202; Cuvier (1829), Règn. An. p. 457. *Bucco niger*: Cuvier (1829), Règn. An. p. 457; Cassin (1864), Acad. Sci. Nat. Philad. p. 242. *Bucco maculatus*: Cassin (1864), Acad. Sci. Nat. Philad. p. 242; *Capito cayennensis*: Vieillot (1816), N. Dict. d'Hist. Nat. IV. p. 500; Sclater (1857), P. Z. S. p. 268; Goffin (1863), Mus. Pays-Bas, Bucc. p. 53. *Capito erythrocephalus*: Des Murs (1849), Rev. Zool. p. 161; Sclater (1862), Ibis, p. 1.

outer web forming a conspicuous transversal band; quills brown, exterior webs edged narrowly with olive-yellow, shading into cream-colour at the tips of the tertiaries, inner webs broadly edged with pale yellowish white; tail olive-brown; chin whitish; under surface pale glistening yellow; flanks and under tail-coverts olive-yellow, mottled with black; on the sides of the breast there are numerous small oval black spots; irides red; bill plumbeous; legs and feet black. Wing 3″·2, tail 2″·3.

Female.—The female has the colours of the top of the head and occiput duller; the whole of the upper plumage is interspersed with white; the wing-coverts are edged with dirty yellowish white; the whole of the under surface is covered with large black spots, except on the centre of the abdomen.

The young bird has the same plumage as the female, except that the throat is not spotted.

Hab. Eastern Peru (*Sclater*); Cayenne (*Pollen*).

The species was one of the first known of the whole family, having been mentioned as long ago as 1760. As the "*Bucco niger*" of Müller is clearly this species, his name, though inappropriate, must stand. Owing to the great difference of colouring existing between the male, female, and young, the two latter have by several authors been given separate specific names; further research, however, has now quite cleared up the point. Des Murs, in the 'Revue Zoologique' for 1849, gave a very exhaustive account of the colouring of this species at the different stages of maturity; it is a remarkable fact that the American members of this family are the only ones in which the sexes differ.

Capito niger, to judge from the number of specimens in this country, is by no means a rare bird; of its habits and nidification nothing need be said, since, as far as we know, they in no way differ from other species.

The figures in the Plate are taken from specimens in our own collection.

CAPITO AURATUS.

CAPITO AURATUS.

(THE GOLDEN-THROATED BARBET.)

Barbu orange du Pérou	(1806) Levaill.; Barbus, pl. 27.
Barbu de la Guyane	(1806) Levaill.; Barbus, pl. 26.
Bucco auratus	(1806) Dum.; Dict. Sci. Nat. IV. p. 54.
Bucco peruvianus	(1817) Cuv.; Règn. Anim. p. 428.
Capito punctatus	(1830) O. des Murs; Icon. Ornith. t. 20.
Micropogon aureus	(1830) Temm.; Pl. Col. Texte, p. 83.
Capito aurifrons	(1832) Vigors; P. Z. S. p. 267.
Micropogon flavicollis	(1837) Bp.; P. Z. S. p. 120.
Capito peruvianus	(1846) G. R. Gray; Gen. of B. II. p. 430.
„ *flavicollis*	(1846) G. R. Gray; Gen. of B. II. p. 430.
„ *amazonicus*	(1849) Deville & Des Murs; Rev. et Mag. de Zool. p. 161.
„ „	(1865) Goffin; Mus. Pays-Bas, Bucc. p. 55.

♂. Major: rostro plumbeo: suprà niger sulphureo variegatus: fronte nitenti-sulphureâ: gutture aurantiaco: pectore immaculato.

♀. Mari similis, sed suprà aurantiaco variegata, gutture pectoreque maculatis.

♀ juv. Similis sed gutture haud maculato.

Hab. in regione Neotropicâ.

Adult Male.—Forehead shining sulphur-yellow, shading into olive-yellow, with a tinge of brown on the occiput and nape; a stripe over each eye running down the sides of the head and neck sulphur-yellow; upper plumage and sides of the head and neck shining black, the former variegated with sulphur-yellow, more so on the lower back and upper

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Additional references.—*Bucco peruvianus*: Cuv. (1829), Règn. An. p. 457. *Capito punctatus*: Less. (1831), Traité d'Orn. p. 65; Gray (1846), Gen. of B. II. p. 430. *Micropogon aureus*: Deville et Des Murs (1849), Rev. et Mag. de Zool. p. 161. *Capito peruvianus*: Sclater (1854), P. Z. S. p. 115; id. (1855), P. Z. S. p. 163; id. (1857), P. Z. S. p. 267; id. (1858), P. Z. S. p. 75; id. (1861), Ibis, p. 181; id. (1862), P. Z. S. p. 1; id. (1866), P. Z. S. p. 195; id. (1867), P. Z. S. p. 753. *Capito amazonicus*: Scl. (1861), Ibis, p. 186. *Capito auratus*: G. R. Gray (1868), Cat. Brit. Mus. Capit. p. 20. *Capito aurifrons*: G. R. G. (1846), Gen. of B. II. p. 430.

tail-coverts; a large spot on each of the feathers of the greater wing-coverts, on the exterior edge forming a conspicuous transversal band; quills dark brown, narrowly edged on the exterior web with olive-yellow; a large spot of pale yellowish white near the tips of the inner cubitals; the interior webs of the quills broadly edged with the same colour; tail brown, washed with olive; entire throat and a moustachial stripe rich orange; under surface pale shining yellow; flanks spotted with small, pear-shaped, black drops; thighs and under tail-coverts olive-yellow, mottled with black; irides red; orbital skin blackish: bill, legs, and feet bluish black. Wing 3″·1, tail 2″.

Female.—Head duller than the male; sides of the head and neck spotted finely with dirty white; upper plumage more variegated with yellow; the wing-coverts broadly margined with dark orange-yellow; throat orange, covered with large, round, black drops; the whole of the under surface covered with similar spots, except on the centre of the abdomen.

Juv.—The young male has a band of black spots across the breast, and many more large spots on the sides of the breast; the black of the sides of the head is interspersed with dirty white, and the coverts edged with orange yellow.

Hab. Chamicuros, Peru (*Hauxwell*, *Bartlett*); R. Ucayali (*Bartlett*); Rio Negro, north-west of Brazil (*Natterer*); New Granada, Rio Napo (*Sclater*); Ecuador (*Verreaux*).

Capito auratus is the commonest of the American Barbets, and may be known from the only other two species which at all resemble it, namely *C. niger* and *C. quinticolor*, by its golden throat, from which it takes its name.

It will be seen by the references at the head of this paper that we have added *C. amazonicus* to the synonyms of this species, being of opinion, after examining the specimens in the British Museum, that the birds labelled *C. amazonicus* are only, the one a specimen of *C. niger*, and the other a dark-throated specimen of the species on which we are now writing.

Des Murs, in his carefully worked out paper on this subgroup in the 'Revue Zoologique' for 1849, gives a description of the typical bird (of which we have been unable, unfortunately, to see the skin) of *C. amazonicus*, which exactly corresponds with the specimens in the British Museum.

Further research may prove that we are wrong; but at present we hold to our opinion

that *C. amazonicus* is not a separate species; for the guidance of our readers, we would remark that the bird so called is in all respects similar to *C. auratus*, except that it has a deeper and more ruddy orange throat.

Mr. Bartlett, who has recently obtained numerous specimens of this bird, and has had great opportunities of observing its habits while travelling in South America, has kindly furnished us with the following note:—

"*C. peruvianus* is common in Chamicuros. It is always to be found in flocks on very high trees, feeding on the different fruits, in company with a great number of *Cœrebidæ*. There is no doubt that these birds also feed on insects; for I occasionally fed four young birds of this species, which were brought to me by the Indians, with locusts and spiders; they eat them voraciously, and appeared to thrive on them. I also fed them on bananas and a little boiled meat, and kept them for some time; but being obliged to leave them to the care of some Indians, they died. The four were from one nest, and I should think that they probably represented the usual number of eggs laid. They breed in holes in the trunks of trees. Their note is short, a double sound, somewhat resembling the call of a Dove."

The figures in the accompanying Plate and the descriptions are taken from specimens in our own collection, obtained from Mr. Bartlett.

P.W.M. Trap. Leiden exc

CAPITO QUINTICOLOR.

CAPITO QUINTICOLOR.

(FIVE-COLOURED BARBET.)

Capito quinticolor . . . (1865) Elliot; Nouv. Arch. du Museum, I. Bullet. p. 76, pl. iv. fig. 1.
" " . . . (1870) Gray; Hand-l. of B. II. p. 178.

C. caudâ brevi: culmine simo: major: rostro plumbeo: suprà niger, flavo variegatus: gutture albo: fronte nigrâ.

Hab. in Novâ Granadâ.

Upper surface of the body black, all the feathers of the crown, occiput, and neck tipped with blood-red; feathers of the back, rump, and upper tail-coverts, as well as the secondaries and a transverse band across the wing-coverts, yellow, with a slight dash of green; chin, cheeks, throat, sides and fore part of the neck white, washed with pale yellow; breast and middle of the belly orange-yellow; flanks and under tail-coverts spotted with black on an olive ground; quills and tail-feathers tinged with olive-brown; bill black, whitish at the base; tarsi lead-colour. Total length ·146 metre, wing when closed ·09, tail ·05, bill from forehead ·02, tarsus ·02.

Hab. New Granada (*Triana*).

This Barbet, of which only a single specimen is known, in the Paris Museum, was described originally by Mr. D. G. Elliot. It is allied to *C. maculicoronatus* of Lawrence, and was sent by M. Triana from New Granada.

Our descriptions and figures are copied from the original paper in the 'Nouvelles Archives,' as we have never seen the bird ourselves.

J. G. Keulemans del. & lith.

CAPITO BOURCIERI. ♂, ♀ & ♂ juv.

CAPITO BOURCIERI.

(BOURCIER'S BARBET.)

Micropogon bourcieri	(1845) Lafr. Rev. Zool., p. 179.
Capito bourcieri	(1846) Gray, Gen. of B. ii., p. 430.
Eubucco bourcieri	(1850) Bonap. Consp. Gen. Av. i., p. 141.
Micropogon hartlaubi	(1845) Lafr. Rev. Zool., p. 180.
Eubucco hartlaubi	(1850) Bonap. Consp. Gen. Av. i., p. 141.
Capito hartlaubi	(1846) Gray, Gen. of B. ii., p. 430.
Capito capistratus	(1849) Eyton, Contr. to Orn., p. 131.
Megalæma capistrata	(1850) Eyton, Contr. to Orn., p. 29, pl. 45.

♂ C. viridis: rostro pallidè flavescenti: capite toto, nuchâ guttureque sanguineis: mento et loris nigris.

♀ C. viridis: fronte et loris nigris: pileo aureo: fronte posticâ, superciliis et regione paroticâ grisescenti-cœruleis; pectore pallidè sulphureo.

Hab. In parte septentrionali regionis Neotropicæ.

Male. Whole head, neck, throat, and upper part of the breast rich scarlet; lores and chin black; a narrow verditer collar separating the red of the neck from the green of the back, which, together with the wings and tail, is dark green; quills brown edged with pale yellow at the base of the inner web, the outer web of the primaries edged with green at the base, the secondaries more broadly edged with green, especially the innermost, which are almost entirely of the latter colour; tail dark green above, pale green below; breast red, shading off into bright golden yellow on the abdomen and sides of the body; flanks, feathers

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Additional references.—*Micropogon bourcieri*, Lafr. Rev. Zool., 1849, p. 116, pl. 4. *Capito bourcieri*, Sclater, P.Z.S. 1855, p. 162; id. Ibis, 1861, p. 188; Goff. in Schl. Mus. Pays Bas, Buccones, p. 58 (1862); Gray, Cat. Capit. Brit. Mus., p. 22 (1868); Lawr. Ann. Lyc., N.Y., ix., p. 130 (1869); Salv. Ibis, 1870, p. iii. *Eubucco bourcieri*, Scl. P.Z.S. 1854, p. 115, et P.Z.S. 1857, p. 267, et P.Z.S. 1859, p. 146, et P.Z.S. 1860, pp. 95, 297. *Micropogon hartlaubi*, Lafr. Rev. Zool. 1849, p. 176, pl. 6. *Eubucco hartlaubi*, Scl. P.Z.S. 1854, p. 115, et P.Z.S. 1857, pp. 267, 268, et P.Z.S. 1858, p. 75. *Capito hartlaubi*, Scl. P.Z.S. 1855, p. 162, et Ibis, 1861, p. 189, Goff. in Schl. Mus. Pays Bas., *Buccones*, p. 61 (1862); Gray, Cat. Capit. Brit. Mus., p. 22 (1868); Lawr. Ann. Lyc., N.Y., p. 130 (1869); Salv. Ibis, 1870, p. 111.

of thigh and vent dark green, irregularly striped with pale yellow; bill greenish yellow, shading into yellow at the tip; orbital skin yellowish, irides red; legs and feet greenish.

Total length 5·5, wing 3·2, tail 1·9 inches.

Female. Forehead deep blue black; a line of feathers behind the frontal band, extending backwards over the eye, clear blue-grey tinged with green; crown, back and sides of the neck glittering orange, darkest on the nape; rest of the upper surface of the body bright grass-green, deeper on the wing coverts; quills brown, washed externally with green; tail dark green above, brownish beneath; cheeks and ear coverts clear blue-grey; chin black; throat green; a pectoral band of bright orange; rest of the under surface of the body greenish yellow, striped on the flanks with darker green, the feathers of this part of the body being long and silky, whitish in some parts producing a striped appearance; bill plumbeous tinged with greenish, shading into yellow at the tip; legs and feet greenish.

Hab. Ecuador, Esmeraldas, Nanegal, Pallatanga, Rio Napo (*Fraser*): New Granada, Bogotà (*mus. P.L.S.*): Central America, Volcan de Chiriqui (*Arcé, mus. S. & G.*), Costa Rica (*Carmiol*).

The two sexes of this bird were first brought to the notice of Ornithologists in 1845, by the late Baron de Lafresuaye in a paper published in the "Revue Zoologique," in which he names them both as separate and distinct species, calling the male bird *Micropogon Bourcieri*, and the female *C. Hartlaubi*. This error remained undetected until the present year when it was discovered by Mr. Osbert Salvin, and recorded by him in a recent paper in the "Ibis," where, in a critique upon Mr. Lawrence's list of the birds of Costa Rica, draws attention to the fact in the following words:—

"It has long struck me as singular that these two supposed species should always be "found together. Upon examination of all the specimens that had the sexes marked, I "found that all the *C. Bourcieri* were males, and all the *C. Hartlaubi* females. In a small "collection from Ecuador obtained from Mr. Gould, I found a specimen with the head tinged "with golden yellow, just as in *C. Hartlaubi*, while the forehead and throat as well as a few "feathers on the sides of the occiput were red. In fact, this specimen, a young male, was "shot while it was putting off the *Hartlaubi*, and assuming the male or *Bourcieri* plumage; "this transitional state convinced me that the sexes of one species had hitherto been "regarded as distinct."

This difference in the sexes is the more remarkable as both the male and the female are equally brilliantly coloured, and on the head and neck, which are the brightest parts of the body, they do not shew a single tint in common, excepting in the black lores and chin.

Dr. Sclater in his paper on the American Barbets in the "Ibis" (*l.c.*), mentions that the specimens from Nanegal and Esmeraldas, on the opposite sides of the Andes, are slightly larger, though not otherwise different from those of Bogotà. Mr. Salvin also notices that this difference is chiefly observable in the bill, which is longer and stouter and of a clearer yellow colour in the former, and also that in the Ecuadorean bird the red of the breast does not spread downwards over the chest. We have been unable, however, to discover sufficient differences to form a specific distinction, and in this respect our conclusions agree with those of Messrs. Sclater and Salvin.

In specimens shot by Mr. Fraser at Esmeraldas, Ecuador (P.Z.S, 1860, p. 297), that naturalist found vegetable matter in the stomach, and with reference to two other specimens obtained by him at Nanegal (*l.c.* p. 95) he says:—"The gizzard contained green fruit with "minute seeds. The bare skin round the eye is yellowish.". With specimens from Pallatanga, Ecuador (P.Z.S. 1859, p. 146), the following note was given:—"Irides red, "bill greenish-yellow, legs and feet green; gizzard contained fruit and remnants of insects. "Found solitary in high trees; somewhat stupid."

From these statements their food appears to be similar to that of the other Barbets. We are unable to ascertain any information as to their breeding habits, which, however, are probably similar to those of the rest of the family.

Figures 1 and 2 in the plate are drawn from specimens in our own collection from Bogotà, and the third is from that of Messrs. Salvin and Godman from Ecuador, and represents the young bird in the transitional state of plumage, which first led to the identification of the supposed two species as sexes of one and the same bird. Good figures of the male and female are likewise given in the "Revue Zoologique" for 1849.

CAPITO GLAUCO-GULARIS.

CAPITO GLAUCOGULARIS.

(TSCHUDI'S BARBET.)

Capito glaucogularis	(1844) Tschudi; Wiegm. Archiv, p. 301.
„ *erythrocephalus*	(1845) Tschudi; Faun. Peruan. p. 260, pl. 24. fig. 2.
Micropogon glaucogularis	(1850) Bonap.; Consp. Av. p. 142.
Eubucco erythrocephalus	(1857) Sclater; Proc. Zool. Soc. p. 268.
„ *glaucogularis*	(1857) Sclater; Proc. Zool. Soc. p. 268.
Capito tschudii	(1861) Sclater; Ibis, p. 190.

♂. C. minor: rostro flavicante: viridis: capite coccineo: mystacibus flavis.

♀. C. viridis: vittâ frontali usque ad oculos perductâ nigrâ, gutture et regione paroticâ glauco-cæruleis.

Hab. in regione Neotropicâ.

Male.—Entire head rich red, bordered on the nape by a broad semicollar of light blue; upper plumage dark olive-green; quills greenish brown, inner webs edged with yellowish white; a broad moustachial stripe meeting in a large patch on the upper breast, bright sulphur-yellow; chin and throat rich red, bordered by a narrow band of pale blue, below which is another band of bright orange; on the breast there is a patch of bright red; the rest of the under surface is pale yellowish, irregularly striped with dark green; tail underneath yellowish green; bill yellowish, basal portion plumbeous; legs and feet plumbeous. Length 6″·5, wing 2″·5.

Female.—Upper plumage dark olive-green, top of the head and sides of the neck tinged with olivaceous orange; a narrow black frontal band extending in width towards the eyes; behind this runs a broader band of dull light blue, which is continued behind the

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Additional references.—*Capito glaucogularis*: Scl. (1861), Ibis, p. 190; Goffin (1863), Mus. Pays Bas, Bucc. p. 64; Gray (1868), Cat. Brit. Mus. Capit. p. 23; Salvin (1870), Ibis, p. 111; Gray (1870), Hand-l. of B. II. p. 179. *Capito tschudii*: Goffin (1863), Mus. Pays Bas, Bucc. p. 64; Gray (1868), Cat. Brit. Mus. Capit. p. 22; Salvin (1870), Ibis, p. 111; Gray (1870), Hand-l. of B. II. p. 179.

eyes; sides of the head, ear-coverts, and throat light blue, the latter bordered by a band of scarlet; breast yellowish green. In other respects similar to the male.

Hab. Peru (*Tschudi*).

We have been unable to obtain specimens of this rare bird so as to give a personal description. Dr. Finsch, of Bremen, kindly took a careful description of the male and female contained in the Museum of that town, and also made accurate water-colour drawings from the specimens; from this source our Plate and descriptions are taken. Though described so many years ago, no particulars as to its habits have been given in any work; and apparently specimens are not to be obtained easily. In fact, this species and *C. versicolor* seem to have become extinct.

CAPITO VERSICOLOR.

CAPITO VERSICOLOR.

(THE PAINTED BARBET.)

Bucco maynanensis	(1760) Brisson; Ornith. IV. p. 102.
„ *versicolor*	(1776) Müller; Syst. Nat. Suppl. p. 88.
Barbu de Maynas	(1783) Buffon; Pl. Enl. VII. No. 330.
Bucco pictus	(1783) Boddaert; Tabl. Pl. Enl. No. 330.
„ *elegans*	(1788) Gmelin; S. N. p. 406.
Le Barbu élégant	(1806) Le Vaill.; Barbus, pl. 34.
Le Cabezon élégant	(1816) Vieillot; N. Dict. d'Hist. Nat. IV. p. 497.
Capito maynanenis	(1816) Vieillot; N. Dict. d'Hist. Nat. IV. p. 497.
Eubucco elegans	(1850) Bonap.; Consp. Av. I. p. 142.
„ *pictus*	(1857) Sclater; P. Z. S. p. 268.
Capito pictus	(1861) Sclater; Ibis, p. 187.
„ *versicolor*	(1868) G. R. Gray; Cat. Brit. Mus. Capit. p. 21.

♂. C. minor, viridis: capite coccineo: mystacibus grisescenti-cæruleis.
♀. Incognita.

Hab. in regione Neotropicâ.

Adult male.—Green; head, nape, and throat rich red; a well-defined collar, and broad moustachial stripes meeting below the red of the throat, pale blue; the upper plumage bluish green; quills brown, exterior web green; base of the inner webs pale yellowish; breast bright yellow, immediately below this a large patch of rich red on the centre of the lower breast; the rest of the under surface yellowish white irregularly striped with bluish green; bill yellow, bluish at the base; legs and feet black; wing 3″·0, tail 2″·15.

Hab. Peru (*Le Vaillant*).

The Painted Barbet is the species of this subgenus which has been known the longest;

Additional references.—*Bucco maynanensis*: Latham (1790), Ind. Orn. I. p. 203; Cuvier (1829), Règn. An. p. 457. *Bucco elegans*: Cuvier (1829), Règn. An. p. 457; Sclater (1857), P. Z. S. p. 268. *Capito maynanensis*: G. R. Gray (1846), Gen. of B. II. p. 430; Sclater (1857), P. Z. S. p. 268.

but it is still one of the rarest. There is a specimen in the British Museum, and another in the Derby Museum at Liverpool; and besides these two we are not aware of any other in England. Our Plate and description were taken from the former one, and represent an adult male. The female is still unknown, but probably closely resembles that of *C. glaucogularis*, a figure of which is given.

C. versicolor differs from its commoner congener *C. bourcieri* chiefly in its broad blue moustachial stripes meeting under the chin. *C. glaucogularis* has these moustaches yellow.

It has been figured both by Buffon and Le Vaillant, but in none of the works of modern authors.

J. & E. Gould del. & lith.

P. & D. Colnaghi & Co. Printers to the Queen.

CAPITO RICHARDSONI.

CAPITO RICHARDSONI.

(THE BLUE-COLLARED BARBET.)

Capito richardsoni	(1846) Gray; Gen. of B. II. p. 430, pl. 106.
,, *subsulphureus*	(1846) Gray; Gen. of B. II. p. 430.
,, *sulphureus*	(1849) Eyton; Contr. Orn. p. 130.
Eubucco richardsoni	(1850) Bp.; Consp. Av. p. 142.
Capito melanotis	(1861) Sclat.; Ibis, p. 190.

C. capite saturatè sanguineo: vittâ cervicali posticâ cinerascenti-cæruleâ.

Hab. in regione Neotropicâ.

Male.—Green; entire head dark blood-red, below which is a broad collar of deep cindery blue; upper plumage dark green; quills brown, edged on the exterior web with olive-green; chin blackish red; throat and upper breast bright yellow, shading into orange-red on the breast; centre of the belly bright yellow; the rest of the under surface yellowish white, irregularly striped with dark green; beak yellow, bluish at base of lower mandible; irides red; legs and feet dull greenish. Wing 2″·45, tail 1″·55.

Female.—Entire upper plumage dark green; head and back washed with dark yellow; a stripe above the eye, extending in width down the sides of the neck, dark yellow; cheeks and ear-coverts black; chin and throat grey; a broad band of rich yellow across the breast succeeded by a band of dull light green; in other respects similar to the male.

Hab. Interior of New Granada (*Sclater*).

This beautiful little bird belongs to the smaller subgroup of the American Barbets. It

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Additional references.—*Capito richardsoni*: Sclat. (1855), P. Z. S. p. 163; Goff. (1863), Mus. Pays-Bas, Bucc. p. 59; Gray (1868), Cat. Brit. Mus. Capit. p. 22; Salv. (1870), Ibis, p. 112. *Eubucco richardsoni*: Sclat. (1857), P. Z. S. p. 267; id. (1861), Ibis, p. 189. *Capito melanotis*: Gray (1868), Cat. Brit. Mus. Capit. p. 23; Salvin (1870), Ibis, p. 112.

is very similar to *C. aurantiicollis*, the only difference being in the colour of the collar. From all the others it may be known by its dark red head.

The females, as is the case with the American members of the Capitonidæ, differ greatly from the male.

In the article on *Capito bourcierii* will be found extracts from a paper by Mr. Salvin on this peculiarity, showing how he was first led to discover it.

Its habits are similar to its congeners'.

The Plate and description are taken from specimens in our collection.

CAPITO AURANTIICOLLIS.

CAPITO AURANTIICOLLIS.

(THE GOLDEN-COLLARED BARBET.)

Eubucco aurantiicollis	(1857) Sclater; P. Z. S. p. 267.
„ *hartlaubi*	(1857) Sclater; P. Z. S. p. 267 (♀ *aut juv.*).
Capito aurantiicollis	(1861) Sclater; Ibis, p. 189.
„ *melanotis*	(1861) Sclater; Ibis, p. 190 (*part.*).
„ *aurantiicollis*	(1863) Goffin; Cat. Mus. P. Bas, Bucc. p. 60.

♂. C. minor, rostro flavicante, capite saturate sanguineo, vittâ cervicali posticâ clare flavicanti-viridi.
♀. viridis, regione paroticâ nigrâ, vittâ pectorali aurantiacâ.

Hab. in regione Neotropicâ.

Adult male.—Green; entire head rich dark carmine, behind which a broad collar of bright greenish yellow shading off into green, which latter is the colour of the upper plumage; quills brown, yellowish white at base of inner webs; chin deep carmine; mustachial stripe and throat golden-yellow shading into orange on the upper, and bright scarlet on the lower breast; the rest of the under surface is yellow in the centre, and whitish on the flanks, striped with green. Irides red; bill yellow; legs and feet plumbeous, with a green tinge.

Adult female.—Upper plumage dull green; lores and ear-coverts black, a stripe behind the eye, down the side of the neck, orange-yellow; chin white; throat greyish; a broad pectoral gorget of orange-yellow; under surface striped pale yellow and green.

Young.—Occiput and nape dark green; yellow collar wanting; the throat and breast darker than in the adult; the collar is attained gradually, and varies much in width.

Dr. Sclater gives as dimensions, length 5″·5, wing 2″·6, tail 1″·9.

Hab. The valleys of the Upper Amazon and its confluents. Rio Javarri (*Sclater*); Upper Ucayali (*Bartlett*); Upper Amazon (*Hauxwell*).

Additional references.—*Capito aurantiicollis*: Sclater (1866), P. Z. S. p. 196. *Capito melanotis*: Sclater (1866), P. Z. S. p. 196 (*partim*); Salvin (1870), Ibis, p. 112.

The Golden-collared Barbet, which was first described by Dr. Sclater in 1857, belongs to the smaller subgroup of the genus *Capito*, separated as *Eubucco* by Bonaparte. It most resembles *Capito richardsoni*, which replaces it further north in New Granada, the chief difference between the males being in the colour of the collar, which is greyish blue in the latter species.

Capito melanotis, which has till this year taken rank as a separate species, has been lately discovered to be the female of this species and also of *C. Richardsoni*. Mr. O. Salvin, who pointed this out in 'The Ibis' (*l. c.*), gives the following note:—"The female [*C. melanotis*] is larger than that of *C. Richardsoni*, and has the bill stouter; otherwise, as might be anticipated, they closely resemble one another in coloration." In fact the resemblance is so close that authenticated locality is the only safe guide to identification; and the specimens of *C. melanotis* from New Granada may be assumed to be females of *C. Richardsoni*, while those from Ecuador and Peru will belong to *C. aurantiicollis*.

Nothing has as yet been recorded of the breeding-habits of this beautiful Barbet; in many characteristic points it is said by Mr. Bartlett, who speaks from personal observation, to resemble the Toucans, particularly in its manner of perching and jerking the tail. It inhabits forests, and, like the rest of the genus, keeps usually to the tops of the higher trees.

Our description and the figures in the Plate, representing male, female, and young, are taken from specimens in our own collection, obtained by Mr. Bartlett on the Upper Ucayali.

J. G. Keulemans del. & lith.

CALORAMPHUS FULIGINOSUS.

CALORAMPHUS FULIGINOSUS.

(THE RED-BREASTED BROWN BARBET.)

Micropogon fuliginosus	(1830) Temm.; Pl. Col. Texte, p. 83.
Megalorhynchus hayii	(1846) Gray; Gen. of B. II. p. 429 (*part.*).
„ *sanguinolentus*	(1863) Sclater; P. Z. S. pp. 206, 210.
Caloramphus sanguinolentus	(1863) Sclater; P. Z. S. pp. 206, 210.
„ *fuliginosus*	(1863) Goff.; Mus. P. B. Bucc. p. 73 (*part.*).
„ *hayii*	(1868) Gray; Cat. Brit. Mus. Capit. p. 19.

Tapeas of the natives of Borneo (*Motley*).

C. suprà saturatè terricolor: gutture pectoreque rubro maculatis.

Hab. in insulâ "Borneo" dictâ.

Sexes alike; above dark earthy-brown; shafts of the feathers of the head stiff and elongated about an eighth of an inch beyond the webs, black; sides of the face, throat, and breast bright brick-red; under surface yellowish-white, indistinctly spotted with red; bill dark horn-colour (black according to Wallace), paler in the young bird; iris yellow-brown; orbits reddish; feet pink. In size it is similar to *C. lathami*. Wing 3″·2, tail 2″, tarsus 0″·8.

Hab. Borneo (*Motley*, *Wallace*).

This species is confined strictly to the island of Borneo; like many other of the Malayan birds it is replaced in the rest of the Indo-Malayan subregion by a closely allied form, *C. lathami*; and to this day some naturalists are doubtful whether specific separation is admissible. The older authors considered the difference to be sexual, and put down this species as the male. Recent observations have quite disproved this point; and the fact that this one is never found out of Borneo is enough to warrant their being

classed as two distinct species. Motley gives the following note with his specimens from Borneo:—"They are rather uncommon. I shot both these specimens in a tall fig-tree, but doubt their feeding on the fruit, as their stomachs were full of insects." They had probably been feeding on insects, as the fruit was not ripe.

Our Plate is taken from two specimens lent to us by Mr. T. C. Eyton, obtained in Borneo.

CALORAMPHUS LATHAMI.

CALORAMPHUS LATHAMI.

(THE BROWN BARBET.)

Bucco lathami	(1822) Raffles, Linnean Transactions XIII, p. 284.
,, *hayii*	(1831) Gray, Zoological Miscellany, p. 33.
Megalorhynchus spinosus . . .	(1839) Eyton, Proceedings Zoological Society, p. 106.
,, *hayii*	(1840) Gray, Genera of Birds II, p. 431.
Caloramphus lathami	(1841) ,, ,, ,, p. 69.
Psilopus hayii	(1850) Bonaparte, Conspectus Avium I, p 141.
Megalorhynchus lathami . . .	(1846) Blyth, J. A. S., Bengal, vol. XV, p. 12.
Caloramphus fuliginosus . . .	(1863) Goffin, Museum, Pays-bas, Buccones, p. 73.
Caloramphus hayii	(1868) Gray, Catalogue of the British Museum, Capit. p. 19.

Ariko, Berine, Malacca (Eyton).

Ampis, Sumatra (Raffles).

Unkot, Besea, Penang.

C. supra læte terricolor, gutture rufescente, subtus pallide flaviscenti-albo suffuso.

Hab. In regione Indo-Malayanâ.

Description. Upper parts dark earthy brown; the shafts of the feathers of the head stiff and elongated about an eighth of an inch beyond the webs, black; sides of the face rufous brown, chin and throat pale rufescent brownish; the rest of the under parts dirty yellowish white.

Bill dark horn colour in the adult bird, paler, especially at the base, in the young; feet pale yellow.

Tail short; second, third and fourth quills sub-equal and longest.

Inhabits the Malayan Peninsular and Sumatra; in the latter place it is one of the commonest birds, though on account of its dull plumage it has escaped the attention of mere collectors, and but little is recorded of its habits. It has been treated by many of the recent authors as identical with *C. fuliginosus* of Temminck, the Bornean variety; but the inspection of a large series of skins, has convinced us that the latter is a distinct species, having a separate geographical distribution. In this we are born out by the observations of

Mr. A. R. Wallace, who resided for many years in the Malayan Archipelago. He says that, in the course of his researches in Borneo he never once met with the Singapoor bird, and that in Sumatra on the other hand, the red breasted bird was unknown, while the other was common everywhere. In some specimens of *C. Lathami*, the upper wing-coverts are tipped with rufous, and the feathers of the lower back and tail-coverts with dingy greenish-yellow, which seems to mark a very old bird, as we have not noticed it as yet in an unmistakeably young one. It is difficult to speak with any certainty, however, for only a very few of the specimens which reach our museums are properly labelled or authenticated.

There is one specimen of *C. fuliginosus* in the British Museum labelled Singapoor, and presented by Rajah Brooke, but as he lived at Sarawak in Borneo, and the skin is not made up in the Singapoor form so familiar to collectors, it is probably a Bornean specimen wrongly labelled.

Mr. A. R. Wallace remarks of this bird, that "though closely allied to the Toucans and "a fruit eating bird it nevertheless climbs like a Wood-pecker;" adding one more testimony to this disputed point about their habits.

The figure in the plate is taken from one, out of a dozen specimens received in a case from Singapoor. Several intermediate stages of plumage were represented in the tinging of the wing and upper tail-coverts, and judging from the bills, examples of both sexes, old and young were contained in it, but in none of them was there the faintest trace of the crimson red washing on the throat and breast, so conspicuous in the Bornean bird.

STACTOLÆMA ANCHIETÆ

STACTOLÆMA ANCHIETÆ.

(THE YELLOW-FACED BARBET.)

Buccanodon anchietæ . . . . . (1869) Barboza du Bocage P.Z.S. p. 436 & Plate XXIX.
Stactolæma anchietæ . . . . . (1870) C. and G. Marshall P.Z.S. p. 118 & fig. 1, p. 119.

S. brunneo-rufescens: capite guttureque sulphureis: occipite et pectore sulphureo striatis.

Hab. in provinciâ Angolensi Africæ occidentalis.

General plumage reddish brown, forehead incipient, throat and a spot at the base of the lower mandible sulphur-yellow, occiput, nape, and sides of the neck and breast shining black, the former covered with numerous small spots and the latter with longitudinal streaks of sulphur-yellow, a supercilliary eye-stripe, cheeks, and ear-coverts white, primaries and tail brownish black, secondaries with the exterior web edged with greyish white, under wing-coverts, lower belly and under tail-coverts white, tail underneath ashy grey, irides reddish brown; bill, legs and feet black.

Habitat. Angola: Caconda (*Anchieta*).

This species is the latest addition to the African *Capitonidæ*, and is interesting from the striking difference which it exhibits from the other known genera. It is to be hoped that before long we may obtain more information as to its habits and indification from some of the energetic field Naturalists who are collecting in Western Africa. As yet even the female is unknown, and the following note by Professor Barboza de Bocage in the "Proceedings of the Zoological Society for 1869," is all that has yet been recorded about it:—

"Four males from Caconda. It is the second species known of the genus *Buccanodon*.

"The other one, *B. duchaillui*, comes from Gaboon. I have dedicated this new species to "M. d'Anchieta, who sent it to me from West Africa."

It will be seen by the above note that the learned Professor classed this species as a *Buccanodon*. He gave one of his specimens to Mr. R. B. Sharpe, who kindly placed it at our disposal, so we have been able to examine it carefully, and on comparing this bird with *Buccanodon duchaillui* (which genus we have united with *Xylobucco*) we find that there is a material difference between them in the formation of the bill, and further in the rictal bristles, which are well developed in *B. duchaillui* are entirely wanting in the species on which we are now writing. This places them, according to our arrangement, in different sub-families. There being no other genus with which we can identify the present species, we have in a paper in the Proceedings of the Zoological Society (*l.c.*) proposed the generic name under which it now appears.

This bird was well figured in the "Proceedings" for 1869 (*l.c.*). Our plate is taken from Mr. Sharpe's specimen, the only one at present in England.

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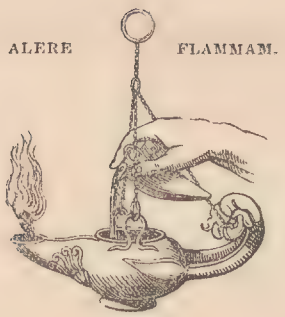
THE END.



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3. GRYLLUS M. thorace denticulato, femoribus ovatis membranaceis. *Syst. Nat.* 425. *n.* 3. ficcifolius.

Muſ. Adolph-Frid. 83. Gryllus Folium lauri.

Roeſel. 2. *claſſ. Gryll. t.* 17. *f.* 4. 5.

Edw. av. t. 258.

Habitat in *Indiis.*

CAPUT ovatum, læve.

ANTENNÆ breviſſimæ, obtuſæ, articulis IX: quorum 1 baſeos latior; 2 breviſſimus, 3 major reliquis; 4, 5, 6, 7 breviſſimi lenticulares. 8, 9 ovati.

COLLUM cordatum.

THORAX ſubtrigonus, lateribus denticulatis, longitudine capitis.

ELYTRA incumbentia, parallela, ſimul ovata, virescentia; ſingula folium Lauri referentia, obtuſa, venoſa, margine interiore approximata.

ALÆ breviſſimæ, emarcidæ, aut vix ullæ.

ABDOMEN ovatum, membranaceo-planum, ſegmentis octo.

PEDES corpore breviores.

1. *Femora* plana, obovata, antice dentata, juxta caput ciliata.
   Tibiæ lanceolatæ, membranaceæ.
2. *Femora* obovata, oblongiuſcula, membranacea, antice & carina denticulata.
   Tibiæ triquetræ, læves.
3. *Femora* lanceolata, membranacea, antice & carina ſubſerrata.
   Tibiæ triquetræ, læves.
   Squama obtuſa inter ungves.

4.

gongyloides. 4. GRYLLUS M. thorace ciliato, femoribus anticis ſpina terminatis; reliquis lobo. *Syſt. Nat.* 426. *n.* 4.

Amœn. acad. 1. *p.* 504. Gryllus thorace linearis alarum longitudine: margine denticulato ciliato.

Rœſel. 2. *claſſ. Gryll. t.* 7. *f.* 1. 2. 3.

Habitat in *Zeylona*.

CAPUT inflexum, vertice ſubulato: acumine capite ipſo longiore, apice bifido, membranaceo.

ANTENNÆ ſetaceæ, longitudine capitis.

THORAX linearis, longitudine abdominis, convexus, pallidus, angulis lateralibus ciliatis acuteis minimis: antice thorace craſſior: lateribus angulo membranaceo dilatatis.

ELYTRA oblonga, longitudine abdominis, obtuſa, flava, baſi antice gibba, in medio maculis duabus ferrugineis obſoletis.

ALÆ membranaceæ, albidæ, plicatæ, ſemiorbiculatæ, antice flavescentes.

PEDES anteriores pallido fuſcoque nebuloſi.

1. *Femora* terminata ſpina, parum recurva.

Tibiæ lanceolatæ, extrorſum ſpinoſæ.

Palma linearis, triangularis, terminata ſpina curva & angulis inferioribus ciliata.

Digitus anguſtiſſimus, Ungvibus minimis.

2. 3. *Pedes* abdomine longiores, inermes, nebuloſi.

Femora linearia, verſus apicem a latere poſtico notata lobo membranaceo ovato.

GRYL-

GRYLLUS thorace femoribusque alatis.

Animal mirabili ſtructura, forte Pupa prioris.

Caput depreſſum, antice carinatum, vertice acuminatum apice plano membranaceo lanceolato; inflexum facie verſus terram, ut vertex foliaceus antrorſum promineat.

Antennæ ſetaceæ.

Thorax longitudine corporis, linearis, teretiuſculus, angulatus, utrinque linea exaratus, apice verſus abdomen adſcendens tubereulis binis acutis.

Baſis thoracis utrinque exſerens alam membranaceam ſ. lobum latum acutum, ut par loborum repræſentet lobum membranaceum.

Elytra Alæve nullæ, at horum loco Membranæ ovatæ, breviſſimæ, ut in Pupis congeneribus, dorſo coalitæ per duo paria.

Abdomen baſi teretiuſculum per quatuor ſegmenta, tum per tria ſegmenta depreſſa dilatatum, ovatum, expanſis segmentis lateralibus in membranas obtuſas.

Pedes 1. *Femora* ſimplicia, lævia, apice calcari lanceolato.

Tibiæ dilatatæ, compreſſæ, margine exteriore membranaceo, triangulares; lateribus duobus interioribus ſpinis ciliatis.

Tarſus triangularis, priſmaticus, terminatus ſpina duobus lateribus ciliatis.

2. *Femora* breviſſima, angulata margine exteriore Ala membranacea longitudinali.

Tibiæ lineares, angulatæ, læves, verſus apicem trifariam inſtructæ alis membranaceis, quarum duæ acutæ, minores; tertia ſemicordata, magna.

Tarſi lineares, angulati, nudi.

3. *Femora* breviſſima, triangula, carinato-membranacea.

Tibiæ filiformes, læves, lineari-ſubangulatæ, apice inſtructæ triplici ala membranacea.

precarius. 5. GRYLLUS M. thorace ſubciliato, elytris flavis ocello ferruginco. *Syſt. Nat.* 426. *n.* 7.

Muſ. Adolph-Frid. 82. Gryllus ocellatus.

Merian. ſurin. 66. *t.* 66.

Ræſel. 2. *Gryll. t.* 1. 2.

Habitat in *America*, *Aſia*.

Corpus flavum, longitudine digiti totius.

Caput ſubtrigonum, inflexum, vertice obtuſiſſimo.

Antennæ capillares.

Thorax pallidus, linearis, convexus, antice gibbus, marginibus lateralibus ſpinis breviſſimis ciliatis.

Elytra flava, ovato-oblonga, coſta longitudinali; ocellus ferrugineus magnus pupilla flava in medio elytri pone coſtam.

Alæ ſemiorbiculatæ, plicatæ, reticulatæ ex hyalino & flavo colore, remotæ parum ab elytris.

Abdomen ovatum, oblongum.

Pedes 1. *Femora* linearia, angulata, antice ciliata ſpinis brevibus.

Tibiæ compreſſæ, latiores, ſubtus bifariam ſpinis ciliatæ.

Palmæ compreſſæ, ſubtus bifariam ſerrato-ſpinoſæ, apice ſubulato incurvo.

2. 3. *Femora* & Tibiæ inermes.

6.

6. GRYLLUS M. thorace ſublineari longitudine abdominis, tibiis primoribus craſſiſſimis. maſculus.

Roeſ. Gryll. t. 1. 2.

Habitat in *Europa* auſtrali Francofurtum usque.

CAPUT triangulare, pallidum; Puncta tria rufeſcentia in vertice.

ANTENNÆ ſetaceæ, longitudine dimidii corporis & ultra.

THORAX linearis, anceps, parum convexus, antice craſſior obtuſius.

ELYTRA lanceolata, ante coſtam longitudinalem angulata, dimidia, transverſe ſtriata, flava; pone coſtam alis ſimillima, quadruplo latiora quam a latere anteriore.

ALÆ ſemicordatæ, latitudine longitudinis thoracis; pallidæ aut fuſco reticulatæ.

ABDOMEN thorace paulo longius, ſed latius.

PEDES 1. *Femora* latiora, compreſſa, vix antice denticulata, remotiſſima a reliquis.

Tibiæ femoribus latiores, binariam ſubtus dentatæ; a latere interiore notatæ macula nigra.

2. 3. *Tibiæ* & *Femora* filiformia, ſ. inermia.

SEXU forte ſolo diſtinctus a GR. precario, uti arguit ſtructura & macula brachiorum. Forte mas antecedentis?

bicornis. 7. GRYLLUS M. thorace lævi, capite bipartito subulato. *Syst. Nat.* 426. *n.* 8.

Habitat in *Indiis.*

Corpus lineare, flavum.

Caput inflexum, vertice ultra medium bipartito exeunte in acumina duo, subulata, recta, diuantia.

Antennæ capillares.

Thorax longus, linearis, convexus, flavus, undique glaber.

Elytra lanceolata, membranacea, striata, flava, abdomine longiora.

Alæ spatio remotæ ab elytris uti in congeneribus; pallidæ, oblongæ, margine anteriore lanceolato, crassiore, textura elytrorum.

Abdomen teretiusculum, cylindricum, pallidum, elytris alisque longius.

Pedes 1. *Femora* angulata, inermia.

Tibiæ crassiores, compressæ, duplici carina ciliatospinosæ.

Palma subtus ciliata bifariam, apice spinosa.

2. 3. teretiusculi, angustiores, inermes, abdomine breviores.

8.

8. GRYLLUS M. thorace lateribus expanſo-lobato, capite cornuto, pedibus anticis latiſſimis. *Syſt. Nat.* 426. *n.* 9. tricolor.

Habitat in *Indiis*.

Corpus magnitudine Bombylii.

Caput triangulare.

Oculi fuſci, in cornicula lateralia auriformia acuminata deſinentes.

Antennæ ſetaceæ, parvæ.

Thorax ovatus, convexus, latere utrinque expanſus in membranam ſemiovatam, apice etiam dilatatus in membranam minorem, ſemiovatam, bifidam.

Elytra pallida maculis albis.

Alæ ſemiorbiculatæ, plicatæ, baſi rufæ, diſco fuſcæ, margine exteriore albæ.

Abdomen ovatum, pallidum.

Pedes 1. *Tibiæ* latiuſculæ, altero angulo duplici ſerie ſpinoſæ.

Palmæ ab uno latere ſimplici ſerie ſpinoſæ.

2. 3. pallidi.

nasutus. 9. GRYLLUS A. capite conico, antennis ensiformibus, corpore viridi. *Syst. Nat.* 427. *n.* 11.

Sultz inf. 8. *t.* 57.

Habitat ad *Cap. b. spei* in *Algirium.*

Corpus magnitudine media.

Caput conicum, adscendens, subsubulatum, obtusum, thorace longius, virescens, lateribus linea una alterave incarnata, apice triquetro.

Os infra basin capitis.

Antennæ ensiformes, longitudine capitis, rufæ.

Oculi oblongi, infra apicem capitis laterales.

Thorax lævis, flavescens, dorso triqueter, antice rotundatus, postice terminatus angulo recto.

Elytra lineari-lanceolata, viridia, alis longiora.

Alæ acutæ, latæ, plicatæ, viridi-albescentes.

Abdomen incarnatum, alis paulo longius, dorso carinatum absque Ense.

Pedes longi.

Femora angulata, inermia.

Tibiæ tertiusculæ, aculeatæ.

VARIETAS Capitis lateribus scabris, forte Mas.

Eundem delineare videntur Rœsel locust. t. 4. Sultz. inf. 8. t. 57, *sed antennis capillaribus brevibus, forte sexus differentia.*

10.

10. GRYLLUS B. unicolor, thorace carinato brevissimo, antennis scutello brevioribus. *Syst. Nat.* 427. *n.* 13. unicolor.

Mus. Adolph-Frid. 83.

Habitat in *Africa.*

CORPUS habitu & facie GR. varioloso, colore flavo aut rubro in toto corpore, alis, pedibus.

CAPUT deflexum, ovatum absque verrucis; Puncta tria, nitida, inter antennas.

ANTENNÆ scutello breviores, filiformes, articulis viginti.

THORAX brevissimus, carinatus, non cristatus.

SCUTELLUM subcarinatum, tegens ¼ abdominis.

ALÆ superiores vix inferioribus crassiores, sed angustiores.

ABDOMEN ventricosum, inflatum.

PEDES postici abdomine non longiores.

variolosus. 11. GRYLLUS B. callofo-punctatus, thoracis carina fubtridentata, antennis brevibus, fronte verrucofa. *Syft. Nat.* 427. *n.* 14.

Habitat in *Africa: Cap. b. Ipei.*

Corpus virefcens, maculis f. punctis pallidis adfperfum, magnitudine 3. f. 4ta.

Caput deflexum, ovatum, antice tuberculis verrucofis. Puncta tria nitida in fronte inter oculos.

Oculi ferrugineo-fufci.

Antennæ virefcentes, filiformes, thorace breviores, articulis circiter viginti.

Thorax breviffimus, dorfo carinatus attollitur antice dentic ulis tribus; cæterum viridis maculis callofis, ovatis, pallidis.

Scutellum fubcarinatum, viride, adfperfum punctis callofis, ovatis, pallidis, duplo longius capite & thorace, involvens $\frac{1}{2}$ abdominis.

Elytra textura fere alarum, viridia, albo-reticulata f. nebulofa.

Alæ albefcentes, viridi-reticulatæ.

Abdomen ventricofum, virefcens, characteribus variis callofis pallidis fcriptum.

Pedes virefcentes: Poftici abdomine non longiores.

Larva colore fimillimo gaudet.

12.

12. GRYLLUS B. thorace cymbiformi carinato denticulato, capite acuminato, abdomine cæruleo. *Syſt. Nat.* 427. *n.* 15. ſerratus.

Suitz inſ. t. 8. *f.* 58.

Reſ. 2. *Gryll. t.* 16. *f.* 2.

Habitat in *Indiis*.

Corpus magnitudine Scarabæi Cervi, colore flavum, ſ. teſtaceum, ſ. rufum, ſ. vireſcens angulis rubris.

Caput inflexum, apice faſtigiatum, antice compreſſum in canalem, in cujus medio punctum.

Antennæ thorace breviores, filiformes, articulis viginti uno.

Thorax angulatus, dorſo carinatus carina maxima, adſcendente, convexa, acie acuta, ſubtiliſſime crenata ſ. ſerrata; Superficies thoracis, præſertim angulis, ſcabra eſt. Thorax poſtice valde acuminatus, tegens ⅓ abdominis.

Alæ ut in congeneribus: ſuperiores anguſtiores, craſſiores.

Pedes longi.

Femora poſtica angulis quinque muricata geniculo ſupra globoſo, oſculo emarginato ſubtridentato.

carinatus. 13. GRYLLUS B. thoracis crista integra lateribus biplicata, corpore cinereo, femoribus posticis supra dentatis. *Syst. Nat.* 427. *n.* 16.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus magnitudine Scarabæi Cervi, totum cinereum s. cinereo-nebulosum.

Caput supra plano-depressum, fronte compressum canaliculatumque puncto in medio, elevato.

Antennæ albido-cinereæ, compressæ, longitudine fere thoracis.

Thorax cinereo-albicans, fusco-substriatus, carina convexa in *Cristam* integram, compressam, lateribus 2 s. 3 rugis obtusis inæqualem.

Elytra cinereo-nebulosa, substriata.

Alæ cinereæ, versus postica fuscæ.

Pedes cinerei.

Femora postica rugosa, supra carinata, denticulis inæqualibus quasi serrata, subtus canaliculata, vix manifeste denticulata.

Tibiæ posticæ bifariam spinosæ.

14. GRYLLUS A. thorace rotundato, alis caudatis elytro longioribus, pedibus anticis palmatis tomentosis. *Syst. Nat.* 428. *n.* 19. Gryllotalpa.

Mus. Adolph-Frid. 83.

Faun. Suec. 1. *n.* 619. Gryllus pedibus anticis palmatis.

Mouff. inf. 104. Gryllotalpa.

Velsch. hecast. 1. *p.* 39. Talpa ferrantis imperati.

Gœd. belg. 1. *p.* 168. *t* 76. Gryllotalpa.

Raj. inf 64. 67. Gryllotalpa mouffeti.

Frisch. germ. 11. *p.* 28. *t.* 5. Gryllus campestris pedibus talpæ.

Blackw. herb t. 81. *f.* 10.

Rœsel 2. *gryll.* 83. *t.* 14. 15.

Catesb. car. 1. *p.* 8. *t.* 8.

Habitat in *Europa*, *America*, *Asia*.

Caput rotundatum, fuscum.

Antennæ corpore dimidio breviores.

Thorax convexus, rotundatus supra & postice.

Elytra ovata, brevissima, fusca, nervosa.

Alæ albidæ, venosæ, complicatæ in caudam corpore longiorem, subulatam.

Pedes primi paris latissimi, compressi.

Femora basi digito instructa, in medio subtus lobo sinuata.

Manus tetradactylæ, subtus lobo instructæ.

Femora postica compressa, non dentata.

15.

campestris. 15. GRYLLUS A. thorace rotundato, cauda bifeta ſtylo lineari, alis elytro brevioribus, corpore nigro. *Syſt. Nat.* 428. *n.* 21.

Raj. inſ. 63. Gryllus campeſtris.

Rœſel 2. *gryll. t.* 13. *f. omnes.*

Habitat in *Europa* auſtraliore usque in *Cap. b. ſpei.*

CAPUT nigrum, glabrum, maxillis validis.

ANTENNÆ nigræ, fere corporis longitudine, articulo infimo craſſiſſimo.

THORAX rotundatus, breviſſimus, utrinque truncatus.

ELYTRA ovata, cinerea, ad angulum acutum nervoſa & reticulata, baſi albida.

ALÆ cineraſcentes, complicatæ in caudam vix elytris longiorem.

ABDOMEN poſtice cornicula 2 exſerit.

ENSIS filiformis, brevis, verſus apicem fere craſſior

PEDES nigri.

FEMORA poſtica latiſſima, compreſſa, inermia.

16.

16. GRYLLUS T. thorace tetragono angulis citrifolius, ſcabro. *Syſt. Nat.* 429. *n.* 23.

Muſ. Adolph Frid. 84. Gryllus tentragonus.

Habitat in *Indiis*.

Corpus magnitudine Phalænæ majoris.

Caput inflexum.

Antennæ capillares, thorace longiores.

Thorax poſtice obtuſus, ſupra planus angulis longitudinalibus, ſcabris, acutis, obtuſe ſerratis.

Elytra flava ſ. viridia, ovato-oblonga uti folium Lauri.

Alæ albidæ, plicatæ.

Abdomen ovatum, compreſſum, breve.

Ensis breviſſimus, lunatus, lævis.

Femora lævia, poſtice compreſſa, dorſo rotundata, ſubtus angulo duplici ſerrato-ſpinoſa.

Tibiæ tetragonæ, ſerrato-ſpinoſæ.

17.

laurifolius. 17. GRYLLUS T. thorace subtetragono lævi trilobo, alis angularis elytro obsuſiore longioribus. *Syſt. Nat.* 429. *n.* 24.

Marcgr. braſ. 246. Tucurubi braſilienſibus.

Sloan. jam. 2. *p.* 201. *t.* 236. *f.* 1. Locuſta maxima viridis, alis latiſſimis.

Habitat in *America* meridionali.

Corpus mediæ magnitudinis, totum fere viride.

Caput inflexum, obtuſum.

Antennæ capillares, longitudine elytrorum.

Thorax ſubtetragonus, lævis, antice truncatus, poſtice dilatato-rotundatus, lateribus deflexis rotundato-lobatis.

Elytra venoſa, ovali oblonga, viridia, abdomine duplo longiora.

Alæ lanceolatæ, acutiores, paulo elytris longiores.

Pedes lævuſculi, vireſcentes, Femoribus poſticis ſubtus ſpinoſis.

18.

18. GRYLLUS T. thorace ſubquadrato lævi, elytris alisque corpore longioribus. *Syſt. Nat.* 429. *n.* 26. elongatus.

Habitat in *Indiis*.

Corpus magnitudine Scarabæi Cervi, totum cinereo-pallidum.

Caput parvum, læve.

Antennæ ſetaceæ, abdomine longiores, ſed elytris paulo breviores.

Thorax quadratus, lævis, poſtice rotundatus, ſupra planus, lateribus compreſſis ſegmentis duobus, angulo utroque ad latera notatus crena duplici, obtuſa.

Elytra ſublinearia, corpore duplo longiora, cinereo-livida, longitudinaliter adſperſa maculis ſublunatis exoleto-fuſcis.

Alæ longitudine elytrorum, cinereo-lividæ, immaculatæ.

Ensis lævis, adſcendens, vix manifeſte arcuatus, margine integerrimo.

Pedes poſteriores alis ſesqui longiores ſ. corpore triplo longiores

lamellosus. 19. GRYLLUS T. thorace subquadrato, foliolis ovatis ante femora postica. *Syst. Nat.* 429. *n.* 27.

Habitat in *Indiis*.

Corpus inter maxima numerandum.

Caput inflexum. *Frons* obtusa, angulo transverso, obtuso, inter antennas absque lacuna.

Thorax obscure cinereus, quadratus segmentis duobus, postice rotundatus.

Elytra lata, obtusa, obscure cinerea, venis fuscis transverse striata.

Alæ albidæ.

Abdomen ovatum, compressum.

Ensis adscendens, niger, lævis.

Femora omnia subfusca, teretiuscula, subtus versus apicem aculeata. Ad insertionem femorum, ante duo paria posteriora, Foliola duo, ovata, concava. Ante primum par vero acumina duo subulata; quæ nota huic Speciei singularis.

20.

20. GRYLLUS T. thorace rotundato, alis ocellatis. pubicis ocello notatis. *Syſt. Nat.* 429. *n.* 28.

Habitat in *Indiis.*

Corpus ferrugineum totum, primæ magnitudinis.

Caput antice pallidum; Linea alba ab ocellis per latera ad thoracem ducens.

Thorax rotundatus, ſupra convexus.

Elytra ovalia, e rufo pallida, fuſco-nebuloſa, ſubtus magis purpuraſcentia.

Alæ utrinque concolores, fuſcæ, reticulatæ punctis venoſis albis.

Ocellus magnus, rotundatus, niger, extus rufeſcens, notatus Lunulis duabus albis, adſperſus punctis albis; ſitus ad extimum alæ marginem.

Ensis arcuatus, longitudine abdominis, utrinque ſerratus, apice fuſcus.

Femora ſubtus ſpinoſa.

acuminatus. 21. GRYLLUS T. thorace rotundato, vertice ſubulato, alis virescentibus. *Syſt. Nat.* 429. *n.* 29.

Habitat in *Indiis*.

Corporis magnitudine ad maximos Sueciæ accedit.

Caput inflexum. Vertex acumine ſubulato, acuto. *Maxillæ* atræ.

Thorax lævis, rotundatus, ſubtrilobus, lateribus deflexis compreſſis.

Élytra longitudine corporis.

Alæ virescentes, longitudine elytrorum.

Abdomen ovatum, compreſſum.

Ensis longitudine abdominis, lanceolatus, latior quam in ulla alia.

Pedes & Femora ſubtus ſpinoſa.

22.

22. GRYLLUS T. thorace rotundato, vertice acuminato, subtus puncto ocellari nigro, alis viridibus. *Syst. Nat.* 430. *n.* 30. triops.

Raſ. inſ. t. 16. *f.* 3?

Habitat in *Indiis*.

CAPUT viride, deflexum vertice acuminato, obtuſiuſculo inter antennas; ſub ipſo apice notatum puncto nigricante oculum mentiente.

ANTENNÆ ſetaceæ, flavæ, longitudine capitis.

THORAX ſupra & poſtice rotundatus.

ELYTRA lanceolata, viridia, lateralia.

ALÆ virides.

ABDOMEN flaveſcens, alis dimidio brevius.

ENSIS viridis, adſcendens, rectus, lævis, longitudine abdominis.

PEDES viridescentes.

FEMORA ſubtus ſerrata.

rugoſus. 23. GRYLLUS T. thorace rotundato rugoſo criſtato, capite acuminato, femoribus poſticis ſubtus repandis. *Syſt. Nat.* 430. *n.* 31.

Habitat in *Indiis*.

CAPUT reflexum, pallidum, inter antennas acuminatum.

ANTENNÆ ſetaceæ, corpore longiores.

THORAX pallidus, antice prominulus, obtuſus, ſupra rotundatus, admodum rugoſus, poſtice ſemiorbiculatus, notatus verſus apicem crista compreſſa crenata.

ELYTRA ovato-lanceolata, pallida, fuſco-nebuloſa, notata juxta & ante coſtam ordine punctorum.

ALÆ plicatæ, pallidæ, venis fuſcis reticulatæ.

ABDOMEN ſupra nigrum, ſubtus flaveſcens.

ENSIS abdomine brevior, nigricans, ſurſum ſerratus.

FEMORA antica angulata; reliqua compreſſa, latiuſcula, margine ſubtus membranaceo repando.

TIBIÆ inermes.

24. GRYLLUS T. thorace rotundato ſubverrucoſo, alis latiſſimis: nervis quindecim. *Syſt. Nat.* 430. *n.* 33. aquilinus.

Habitat in *Indiis*.

CORPUS primæ magnitudinis.

CAPUT rotundatum, glabrum. *Os* inflexum. *Frons* denticulis tribus conniventibus: medio canaliculato.

ANTENNÆ ſetaceæ, longitudine fere corporis.

THORAX teretiuſculus: ſupra verrucæ acutæ tribus paribus: margo lateralis deflexus, dibrinoſus, crenatus, antice margine obtuſo dilatato cum acumine; poſtice ſub thorace foſſæ duæ transverſæ.

ELYTRA lanceolata, concava, craſſiuſcula, nebuloſa ſ. marina.

ALÆ latiſſimæ, ſubrotundæ, antice rectiuſculæ, radiis quindecim inſtructæ, latitudine longitudinem abdominis excedentes, colore utrinque pallido & fuſco fere teſſellatim pictæ.

ABDOMEN ſubcylindricum ſegmentis X.

ENSIS longitudine abdominis, enſiformis, acutus, bivalvis, pallidus, extus niger, margine ſuperiore in angulum obſoletum verſus apicem dilatato; margo ſuperior ſubtiliſſime crenatus; inferior margo craſſiore dorſo inſtructus.

PEDUM *Femora* 1. teretiuſcula, ſubtus plana, glabra, ſpina duplici terminata.
2. compreſſa, terminata ſpinis 2, & ſubtus armata ſpinis 3 longitudinaliter digeſtis.
3. nebuloſa, duplo longiora, craſſiora, angulata, ſpinis terminata & ſubtus longitudinaliter armata 9 ſpinis.

Tibiæ 1. ſubtus, &
2. utrinque, &
3. quadrifariam armatæ ſpinis longitudinalibus, in 3:io duplo longioribus.

melanopterus.

25. GRYLLUS T. thorace rotundato lævi, elytris abdomine dimidio brevioribus, alis nigris. *Syst. Nat.* 430. *n.* 34.

Habitat in *Indiis*.

Corpus totum testaceum, magnitudine Libellulæ.

Caput inflexum, flavum, læve, inter antennas latiusculum.

Thorax convexus, lævis, postice obtusissimus margine erectiusculo.

Elytra ovali-oblonga, longitudine thoracis.

Alæ obtusissimæ, nigræ, sed antice margine lato testaceo.

Abdomen alis duplo aut triplo longius, crassum, teretiusculum, medio crassius.

Ensis rectus, longitudine abdominis, scaber, margine serratus, apice nigricans.

Femora antica duplici margine serrato-spinosa; postica teretia, vix angulata, subtus aculeata.

26.

26. GRYLLUS T. thorace rotundato lævi, elytris ovatis, alis truncatis, ſpinis tibiarum filiformibus. *Syſt. Nat.* 430. *n.* 35. faſtigiatus.

Habitat in *Indiis*.

Corpus craſſitie inter majores, longitudine inter minores conſiderandum.

Caput pallidum, inflexum, ovatum, obtuſum.

Thorax teretiuſculus, rotundatus, pallidus.

Elytra ovata, pallida, longitudine abdominis.

Alæ pallido-fuſcæ, venis nigris reticulatæ, longitudine elytrorum, latiſſimæ, obtuſiſſimæ & quaſi truncatæ.

Abdomen ovatum.
Setæ caudæ binæ diſtantes, ſubulatæ.

Ensis adſcendens, linearis, longitudine abdominis.

Femora 1. 2. inermia.

Tibiæ duplici ſerie aculeatæ: ſpinis filiformibus quatuor parium, longioribus quam in ulla alia ſpecie.

coriaceus. 27. GRYLLUS T. thorace rotundato lævi, elytris coriaceis, alis pallidis, antennis longissimis. *Syst. Nat.* 430. *n.* 36.

Habitat in *Indiis*.

Corpus primæ magnitudinis. Caput, Thorax, Elytra lævia (non glabra), colore corii flavi.

Caput inflexum, vertice triplici acumine connivente.

Antennæ setaceæ, elytris sesqui longiores, colore elytrorum.

Thorax teretiusculus utrinque futuris duabus transversis obtusis.

Elytra colore thoracis, coriacea, immaculata, vasis elevatis, costa una alterave elevata.

Alæ semiorbiculatæ, pallide albescentes, plicatæ, latitudine fere longitudinis abdominis.

Abdomen cylindricum, pallidum, undecim articulorum.

Ensis subadscendens, colore elytrorum, linearis, acutus non crenatus, longitudine tantum abdominis.

Pedes & Femora ut in G. aquilino; sed femora teretia, colore elytrorum.

Varietas Elytris subnebulosis, minus crassis.

28. GRYLLUS L. thorace criſtato: ſegmento quadruplici. *Syſt. Nat.* 431. *n.* 41. criſtatus.

Muſ Adolph-Frid. 83.

Amœn. acad. 1. *p.* 502. *t.* 17. *f.* 4. Gryllus criſta thoracis quadrifida.

Olear. muſ. 21. *t.* 12. *f.* 5.

Edw. av. t. 322.

Friſch. germ. 9. *p.* 3. *t.* 1.

Rœſel. 2. *Gryll. t.* 5.

Habitat in *Aſia*, *Africa*, *America*.

CORPUS maximæ magnitudinis.

CAPUT inflexum, obtuſum.

THORAX compreſſus, ſcaber punctis callioſis, dorſo in aciem criſtatus 4. ſ. 5. lobis, inter quos ſulci decurrunt per latera; apex thoracis in angulum rectum deſinit.

ELYTRA fuſca & ſubteſtaceo-nebuloſa.

ALÆ emarginatæ, verſus apicem plicatæ, reticulatæ ex fuſco & rubro ſ. vireſcente colore, poſtice nigricantes.

ABDOMEN fuſcum ſ. rufeſcens.

PEDES cæruleſcentes.
Femora poſtica lateribus angulatis albo pictis, ſulco angulatis, inermia.

VARIETATES hujus inſignes, vix ſpecie diverſæ.
Alæ in aliis antice rubræ.
2. *in aliis vireſcenti-cæruleæ.*
3. *in aliis cinereæ; omnibus poſtice fuſcæ.*
Thorax in plerisque punctis excavatis.
β. - *in aliis punctis elevato-callioſis.*
δ. - *apice in quibusdam criſtato.*

ægyptius. 29. GRYLLUS L. thorace carinato ſtriis tribus transverſis, alis pallidis fuſco punctatis.

Habitat in Ægypto. D. Haſſelquiſt.

Corpus longitudine digiti.

Caput inflexum, antice lacuna excavatum cum puncto eminente in medio & alio eminente per utramque antennam.

Antennæ filiformes, fuſcæ, articulis circiter 26.

Thorax compreſſus, dorſo carinatus, lineis tribus transverſis exaratus tanquam futuris etiam carinam ſecantibus. Color thoracis pallidus ſ. griſeus punctis excavatis, in medio latere & ſegmento cicatrice notatus. Apex thoracis obtuſe angulatus.

Elytra pallida, fuſco-punctata.

Alæ pallidæ, reticulatæ, pulchre plicatæ.

Abdomen pallidum.

Femora antica teretiuſcula; poſtica angulata, pinnatim ſtriata.

Tibiæ ſubtus aculeatæ.

Varietas forte ſola Gr. migratorii aut tatarici.

30.

30. GRYLLUS L. thorace ſubcarinato: ſegmentis tribus, capite rotundato, maxillis concoloribus. *Syſt. Nat.* 432. *n.* 46. tataricus.

Habitat in *Tataria* usque in *Europam*.

Corpus magnitudine noſtrates maximos ſuperat.

Caput pallidum, obtuſum. Lacuna frontis cum puncto eminente.

Thorax ferrugineus, lateribus albidus, exaratus lineis tribus transverſis, quaſi totidem inciſuris.

Elytra teſtacea maculis fuſcis, coſta ſangvinolenti-pallida, adſperſa maculis fuſcis.

Alæ pallidæ, venis reticulatis fuſcis.

Femora poſtica lævia angulis fuſcis, lateribus albo-flaveſcentibus.

migratorius. 31. GRYLLUS L. thorace subcarinato: segmento unico, capite obtuso, maxillis atris. *Syst. Nat.* 432. *n.* 45.

Frisch. inf. 9. *t.* 1. *f.* 8.

Roes. inf. 2. *gryll. t.* 24.

Edw. av. t. 208.

Habitat in *Oriente.*

Corpus maximæ magnitudinis inter nostrates.

Caput deflexum, obtusum. Lacuna frontis cum puncto elevato.

Thorax deflexus, dorso vix manifeste carinatus, lateribus non angulatis, sed longitudinaliter fuscis: segmento unico transverso.

Elytra lanceolata, pallida, adspersa punctis latis, fuscis, numerosis.

Alæ hyalinæ, versus basin virescentes.

Abdomen testaceum.

Femora postica angulata.

Tibiæ rubræ.

DIFFERT a G. tatarico, cui accedit habitu & magnitudine:
quod hic thoracis unico segmento transverso; ille vero tribus;
quod hic alis basi virescentibus; ille vero costa rubra;
quod hic elytris punctis latis fuscis; ille vero paucioribus.

32.

32. GRYLLUS L. thorace quadrato rubro verrucoſo, elytris fuſcis albo punctatis, alis rufis. *Syſt. Nat.* 431. *n.* 42. morbillofus.

Muſ. Adolph-Frid. 83. Gryllus ruber.

Roeſel. 2. *Gryll. t.* 18. *f.* 6.

Habitat ad *Cap. b. ſpei.*

Corpus ſecundæ magnitudinis, rubrum.

Caput deflexum, rubrum, fronte compreſſa bifida.

Antennæ filiformes, nigræ.

Thorax quadratus, ruber, punctis variis calloſis rubris prominentibus; ſupra etiam ſubverrucoſus.

Elytra fuſca, adſperſa punctis pallidis ſ. albidis, inæqualibus.

Alæ rubræ, maculatæ punctis fuſcis, antice fuſcæ, albido maculatæ; in rubro colore vero punctis nigricantibus rarioribus adſperſæ.

Abdomen flavum.

Pedes rubri plantis nigris.

Femora angulata.

miliaris. 33. GRYLLUS L. thorace ſubquadrato dentato verrucoſo, elytris punctis calloſis. *Syſt. Nat.* 432. *n.* 43.

Habitat in *Indiis*.

Corpus magnitudine Scar. Cervi, facie Laternariæ candelariæ, alis ſcilicet adſperſis Punctis albis calloſis.

Caput flaveſcens, ſupra antennas paulo acuminatum; Lacuna inter oculos. Punctum elevatum ſupra ſingulum oculum.

Thorax luteſcens, ſubquadratus, a tergo nigricans aculeis obtuſiuſculis numeroſis & duobus præſertim majoribus obtuſioribus rufeſcentibus; ad marginem anteriorem poſtice rotundatus eſt thorax margine denticulato.

Antennæ extrorſum fuſcæ.

Elytra pallida, venis reticulata, adſperſa punctis latiuſculis, opacis, calloſis, albis ſ. flavis.

Alæ pallidæ, venis reticulatæ, baſi obſcuriores.

Abdomen rufeſcens, ſegmentis fuſcis

Pedes rufeſcentes.

Femora lævia, ſulcata.

34. GRYLLUS L. thorace ſubcarinato ſcabro, capite obtuſo, femoribus piloſo-ciliatis. *Syſt. Nat.* 432. *n.* 44. hæmatopus.

Habitat in *Indiis*.

Corpus ſubcinereum, ſatis craſſum ratione magnitudinis, magnitudine noſtratum.

Caput obtuſum. Lacuna in fronte & in hac punctum elevatum.

Antennæ filiformes, longitudine thoracis.

Thorax punctis ſcaber, ſubcarinatus, notatus crenis duabus lateralibus, ſupra etiam unica vix manifeſta.

Elytra cinerea, nebuloſa.

Alæ hyalinæ, reticulatæ venis nigris tenuiſſimis.

Pedes anteriores teretes, inermes, cinerei.

Femora poſtica angulata, interiore latere atra, angulo utrinque pilis longis ciliata.

Tibiæ poſticæ ſangvineæ, uti etiam digitus.

variegatus. 35. GRYLLUS L. thorace rotundato flavo, segmento unico, capite obtuso, alis viridibus. *Syst. Nat.* 432. *n.* 47.

Habitat in *America*.

Corpus mediæ magnitudinis.

Caput apice gibbum, fronte lacuna longitudinali. Frons rubra; picta characteribus quadrato-orbiculatis, atris.

Antennæ thorace longiores, nigræ, annulis rubris.

Thorax rotundatus, deflexus, flavus, unico segmento transverso, postice obtusus.

Elytra viridia, longitudine abdominis.

Alæ itidem virides, longitudine abdominis.

Pedes præsertim anteriores, mire variegati ex nigro, sanguineo, luteo.

36.

36. GRYLLUS L. thorace subcarinato, alis virescenti-cæruleis, fascia nigra. *Syst. Nat.* 432. *n.* 48. cærulescens.

Frisch. inf. 9. *t.* 1. *f.* 3.

Ræs. 2. *Gryll. t.* 21. *f.* 4.

Sultz inf. t. 9. *f.* 60.

Habitat in *Germania.*

Corpus facie trium insequentium.

Caput obtusum.

Elytra fusco-nebulosa, fasciis duabus pallidis.

Alæ virescenti-cæruleſcentes, extimo nigræ, apice fusco hyalino.

surinamus. GRYLLUS alis cæruleis, elytris viridibus, thorace lineis quatuor flavis.

Habitat *Surinami*.

Corpus e parvis.

Oculi prominuli.

Antennæ fuscæ.

Thorax niger lineis quatuor, flavis, longitudinalibus.

Elytra obscure viridia, striata.

Alæ cæruleæ, nitidissimæ.

Pedum Femora omnia basi sanguinea.

Hic extra Museum a nobis visus.

37.

37. GRYLLUS L. thorace ſubcarinato, alis rubris faſcia nigra apiceque hyalinis. *Syſt. Nat.* 432. *n.* 49. obſcurus.

Reſ. inſ. 2. *gryll. t.* 21. *f.* 6.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus magnitudine & facie G. ſtriduli, ferrugineo-teſtaceum.

Caput obtuſum, ſubrugoſum, griſeum. *Maxillæ* nigræ.

Antennæ filiformes, fuſco-teſtaceæ, vix thorace longiores.

Thorax ſubcarinatus, ſubrugoſus, absque ſegmentis, apice angulo recto terminatus.

Elytra teſtacea, fuſco parce nebuloſa.

Alæ faſcia arcuata nigra; inter faſciam & corpus ſanguineæ; extra faſciam hyalinæ.

Pedes nebuloſi: *Femora poſtica* laterc interiore nigra. *Tibiæ poſticæ* ſanguineæ, denticulis apice nigris.

cafer. 38. GRYLLUS L. thorace ſubverrucoſo, fronte prominula, alis ſanguineis, antennis nigris moniliformibus.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus magnitudine vix Gr. ſtriduli, teſtaceum, fuſco commaculatum.

Caput teſtaceum, nigro-nebuloſum, obſolete verrucoſum, apice in angulum acuminatum exiens. Puncta duo, lutea, convexa, in medio frontis. *Oculi* teſtacei, nigro lineati.

Antennæ nigræ, moniliformes, longitudine thoracis.

Thorax teſtaceus, nigro maculatus, undique punctis eminentibus verrucoſus. Segmentum poſticum l. Scutellum punctis excavatis adſperſum.

Elytra teſtacea, fuſco obſolete ſtriata.

Alæ ſanguineæ, apice nigricantes.

Pedes quatuor anteriores fuſci, luteo punctati ſ. maculati.

Femora poſtica lutea nigro variegata. *Tibiæ* poſtice duplici ſerie denticulatæ, apice quadridentatæ.

Enſem non vidi.

39. GRYLLUS L. thorace ſubcarinato, alis flavis faſcia nigraque apice hyalinis. *Syſt. Nat.* 433. *n.* 53. alis flavus.

Pet. gaz. 6. *t.* 3. *f.* 6. Locuſta capenſis, alis inferioribus luteis.

Habitat in *Africa: Cap. b. ſpei.*

Corpus habitu & omnibus G. ſtridulo, exceptis ſequentibus notis, convenit. *Frons* obtuſa.

Antennæ filiformes, ferrugineæ.

Thorax ſubcarinatus, ſubferrugineus, albo inſcriptus.

Elytra albido fuſcoque varia, minus verſus apicem nigra.

Alæ faſcia nigra in medio; inter faſciam & corpus viresceuti-flavæ, extra faſciam albidæ ſ. hyalinæ, margine extimo vix fuſcescentes.

Femora *poſtica* fuſco commaculata, apice obtuſa. Tibiæ pallidæ poſtice aculeatæ, apice quadridentatæ; at Tibiæ poſticæ ſanguineæ.

Linea alba.

40. GRYLLUS L. ſubfuſcus, capite conico, elytrorum linea alba obliqua, alis rufis.

Habitat * * *

Corpus mediæ magnitudinis, facie noſtratum.

Caput antice pallidum, verſus oculos aſſurgens in conum obtuſum.

Antennæ nigræ, corpore dimidio breviores, articulis viginti duobus.

Elytra lineari-lanceolata, ſubfuſca, notata in medio Linea parva, alba, oblique ducta.

Alæ fuſco-rufeſcentes.

Femora nebuloſa.

41. GRYLLUS L. thorace rotundato biverrucoſo, elytris ovatis, alis niveis. leucopterus.

Habitat [illegible]

Caput pallidum, inflexum. Vertex tuberculis duobus lævibus inter antennas.

Thorax rotundatus, compreſſus, incarnatus.

Elytra ovata, deflexa, incarnata, a tergo arcte conniventia & ſibi impoſita, occultantia alas.

Alæ niveæ.

Pedes parum ſulcati.

Femora & Tibiæ ſubtus aculeata, longa.

LATERNARIA.

phosphorea. 1. LATERNARIA fronte ovali recta, alis lividis: inferioribus ocellatis. *Syst. Nat.* 434. *n* 1.

Vincent. muſ. 9. Muſca laternaria americana noctu lucens.

Grew, muſ. 158. *t.* 13. Cucujus peruvianus.

Merian. ſurin 49. *t.* 49. Laternaria.

Reaum. inſ. 5. *t.* 20. *f.* 6. 7.

Roeſ. 2. *gryll* *t.* 28. 29.

Habitat in *America* calidiore.

CAPUT clavatum, pellucidum, flaveſcens, glabrum, verius baſin ſupra gibbum, ſubtus fere muricatum.

ROSTRUM ſub baſi capitis, inflexum ſub thorace, & jusque longitudine.

OCULI atri, cincti margine flexuoſo antice, ſupra & poſtice denticulo notato.

ANTENNÆ capitellum ſubgloboſum, pedicello breviſſimo cylindrico, ſub oculis ſito.

THORAX teſtaceus, ſupra carinatus, utrinque a tergo depreſſus cavitate; lateribus obtique angulatis.

ELYTRA ſ. Alæ ſuperiores ovali-oblongæ; pallidæ, fuſco ratiore nebuloſæ.

ALÆ (inferiores) pallidæ, fuſco-nebuloſæ, latiores, poſtice repandæ, plicatæ.

Ocellus ſ. macula magna, fuſca, orbicularis, intra quam annulus minor etiam fuſcus pupilla alba gemina.

ABDOMEN flavum.

PEDES tibiis poſticis aculeatis.

2.

1. LATERNARIA fronte roſtrata adſcendente, elytris viridibus luteo-maculatis, alis flavis apice nigris. *Syſt. Nat.* 10. *p.* 434. *n.* 2. candelaria.

L. Act. Stockh. 1746. *p.* 63. *t.* 1. *f.* 5. 6. *.
Cicada candelaria.

Edw. av. t. 120.

Roſ. inſ. 2. *gryll.* 189. *t.* 30.

Sultz. inſ. t. 10. *f.* 62.

Habitat in *China.*

Caput porrectum in *Cornu* ſubulatum, aſcendens, obtuſum, compreſſiuſculum, ſubangulatum, rubrum, punctis lacteis adſperſum, longitudine corporis.

Oculi ſubgloboſi. Sub oculis *punctum* globoſum pellucidum.

Antennæ? ſub oculo, breviſſimæ, biarticulatæ: articulo inferiore cylindrico; ſuperiore ſubgloboſo, fuſco, ſeta minima terminato.

Thorax teſtaceus uti *Scutellum* trigonum.

Abdomen ſupra fulvum, ſubtus nigrum marginibus luteis.

Elytra faſca, viridi reticulata; in quibus maculæ variæ luteæ albido marginatæ, quarum prima faſcia transverſa, ſecunda cruciformis; reliquæ rotundatæ.

Alæ luteæ, verſus apicem late nigræ.

Pedes flaveſcentes. *Tibiæ* 1, 2 nigræ; 3 denticulatæ.

CICADA.

Crux. 1. CICADA thorace cruciformi corpus totum tegente. *Syſt. Nat.* 435. *n.* 9.

Habitat in *Indiis.*

Corpus monſtroſæ ſ. inſvetæ ſtructuræ, facie nonnihil Cicadæ cornutæ, ſed quadruplo majus, thoracis lateribus in brachia multo latiora extenſis.

Thorax enim niger, antice obtuſus, diviſus in tres partes: in Scutellum ſcilicet & Brachia connata, ex uno corpore tanquam in crucem, cujus *Brachia* compreſſa, ſubtus in aciem angulata; *Scutellum* vero longius, latius, ſubcarinatum, acutum, longitudine totius abdominis, lateribus flavum.

Alæ fuſcæ.

Pedes fuſci.

2. CICADA alis posticis ferrugineo-fuscis: vittis longitudinalibus luteis, abdominis segmentis ciliatis. *Syst. Nat.* 436. *n.* 12. ciliaris.

Rumph. herb. 3. *p.* 210. *t.* 135. Folium ambulans?

Habitat in *Indiis*.

Corpus magnitudine Tabani, fusco-testaceum.

Thorax margine ante alas admodum marginato.

Alæ *superiores* pallidæ, maculis albidis nebulosæ.

inferiores fusco-ferrugineæ & quasi exustæ: fascia lutea versus discum recurvata; quæ in quibusdam triplex est.

Abdominis fusci segmenta pallida, ciliata.

fornicata. 3. CICADA thorace virescente, abdomine fornicato. *Syst. Nat.* 436. *n.* 15.

Habitat in *Indiis.*

Corpus magnitudine Tabani; viride nigro-variegatum Capite, thorace, scutello, pedibus.

Caput antice rotundatum, pilosum, nec ut in reliquis retusum.

Alæ venis ferrugineis, sed superiorum Costa marginalis viridis.

Abdomen ovatum, convexum, ferrugineum, subtus fornicatum singulari modo, dum latera abdominis ultra superficiem inferiorem dilatata in membranam (sectam uti abdomen) viridem deflexam, unde fornicatum evadit abdomen, ut duplo magis videatur continere, quam re ipsa continet.

4. CICADA elytris margine dilatato punctis ſeptem albis. *Syſt. Nat.* 436. *n.* 16. ſtridula.

Seb. theſ. 2. *p.* 23. *t.* 2. *f.* 5. Scarabæus volans.

Habitat - - -

Corpus magnitudine Phalænæ vulgaris, totum fere teſtaceum, obſoletum.

Thorax antice prominens lateribus marginatis obtuſis.

Alæ *exteriores* cineraſcentes venis fuſcis: margine lato hyalino; intra hunc marginem puncta majora ſeptem alba longitudinaliter ſecundum marginem digeſta inſtar catenæ intra lineam fuſcam.

- *inferiores* flavæ, extrorſum fuſcæ, margine lato hyalino ſ. albo; in hac ala Puncta ſ. Lineæ ovatæ, obſoletæ, 5. ſ. 6. verſus marginem exteriorem in ordinem digeſtæ.

5.

capenſis. 5. CICADA alis inferioribus limbo poſtico fuſceſcente palmato-picto.

Pet. gaz. 7. *t.* 4. *f.* 1. Cicada capenſis variegata, marginibus tranſparentibus.

Habitat ad *Cap. b. ſpei.* Tulbagh.

CORPUS e Cicadis manniferis medium.

CAPUT flaveſcens characteribus aliquot nigricantibus; Frons inflexa, nigricans, transverſe ſtriata. *Vertex* punctis tribus, globoſis, pellucidis, rubicundis.

ANTENNÆ nigræ, ſetaceæ, minimæ.

THORAX ſubpiloſus, flaveſcens linea longitudinali & characteribus lateralibus nigris.

SCUTELLUM thorace majus & concolor, emarginatum.

ALÆ *ſuperiores* griſeſcentes, adſperſæ maculis albis hyalinis, imprimis maculæ ſeptem, hyalinæ, oblongæ, verſus marginem tenuiorem, linea ferruginea circumſcriptæ. Margo tenuior latiuſculus, hyalinus, immaculatus; Alæ ſubtus concolores, ſaturatius ferrugineæ, quam ſupra.

inferiores concolores, poſtice fuſceſcentes, ita ut ferrugineus color intret fuſcum quaſi palmatus in ſex vel plures digitos linearis: margo tenuior hyalinus, immaculatus, ſtriatus uti ſuperiorum.

ABDOMEN ſupra nigrum, ſubtus cineraſcens, ano albicante.

Opercula duo, abdominis ſubrotunda, abdomine dimidio breviora.

PEDES cineraſcentes. *Tibiæ* poſticæ aliquot aculeis adſperſæ.

6.

6. CICADA elytris linea flexuosa; alis margine hyalino. *Syst. Nat.* 436. *n.* 18. repanda.

Habitat - - - -

Caput obtusissimum.

Thorax viridis apice acuto, at obtuse emarginato.

Abdomen viride cingulis nigris; spiraculo axillari tumido.

Obs. Cicadæ manniferæ *pleræque difficillime distinguuntur & dignoscuntur, cum differant magnitudine imprimis & irregularibus characteribus thoracis, potius figura quam verbis exprimendis.* Opercula *ista abdominis potius sexus, quam Speciei differentiæ sunt.*

7.

Tibicen. 7. CICADA elytris anaſtomoſibus duabus ferrugineis, ſcutelli apice emarginato. *Syſt. Nat.* 436. *n.* 20.

Muſ. Adolph-Frid. 84. Cicada mannifera.

Merian. ſurin. 49. *t.* 49. Tibicen.

Brown. jam. 436. *t.* 43. *f.* 15. Panorpa.

Habitat *Surinami*, inque *Carolina*.

CAPUT ſubferrugineum.

THORAX ſubferrugineus lineis nigris, margine poſtico viridi, apice obtuſe emarginato.

ALÆ hyalinæ, coſta virefcente, maculis ſ. punctis 2 ſ. 3 fuſcis in alis ſuperioribus verſus exteriora.

ABDOMEN teſtaceo nigroque varium, tectum ſupra ad latera ſquamis antrorſum ſpectantibus ſolitariis, viridibus, obtuſis.

OPERCULA ſub abdomine ovato-oblonga, concava verſus ventrem, viridia, tegentia & excipientia ſubtus maximam abdominis partem.

FEMORA antica ſubtus ſpinis duabus, ut in reliquis.

8.

8. CICADA alis primoribus punctis disci quatuor majoribus, marginis quinque minoribus. peregrina.

Habitat - - - -

Corpus magnitudine Tabani majoris, vel adhuc majus, totum testaceum.

Alæ hyalinæ venis obscuris. In disco alarum superiorum puncta 4, fusca, oblonga, fere longitudinaliter digesta; & puncta 5, minima, fusca, ad marginem in venis.

Opercula abdominis subtus posita, breviſſima.

Femora antica dentata.

violacea. 9. CICADA violacea, alis apice fuſcis. *Syſt. Nat.* 437. *n.* 22.

Habitat - - -

Corpus magnitudine Tabani, ſupra nigricans e cæruleo nitens, ſegmentis abdominis margine tenuiſſimo flavis.

Alæ *ſuperiores* margine antico flavæ, baſi ferrugineo-fuſcæ & apice fuſco-ferrugineæ imprimis ad venas; diſcus vero palleſcens.

- *inferiores* pallidæ, poſtice venis fuſco-ferrugineis dilatatis obſcuratæ.

Pedes pallidi.

Femora antica dentibus tribus armata.

10.

10. CICADA alis deflexis nigris: punctis cæruleis, fronte lateribusque rubris. *Syst. Nat.* 438. *n.* 36. lanata.

Habitat in *Indiis.*

Caput plano-inflexum, fuscum, lateribus sangvineis.

Oculi globosi, ad latera summa capitis.

Cotuia utrinque sub oculis, subrotunda, concava, sangvinea.

Antennæ quasi capitatæ, brevissimæ, inter cotulam & oculos.

Thorax lævis, fusco flavoque varius.

Alæ *superiores* atræ punctis callosis, viridibus, sparsis; apice fuscæ, minus punctatæ.
inferiores fuscæ.

Abdomen fuscum, postice tectum Lana albissima, densissima, mollissima, longitudine alarum.

NEPA.

grandis. 1. NEPA teſtacea, ſcutello lævi, alis albis maculis venisque flavis. *Syſt. Nat.* 440. *n.* 1.

Marcgr. braſ. 258. *f.* 259. Inſectum magnitudine bruſci.

Merian. ſurin. 56. *t.* 56.

Habitat *Surinami.*

Corpus oblongo-ovatum, ferrugineum, magnitudine Scar. Cervi in minoribus, in majoribus vero duplo majus.

Antennæ breves, palmatæ, quadrifidæ.

Thorax convexus, teſtaceus, antice poſticeque transverſe terminatus; punctum impreſſum ab utroque latere.

Scutellum lævе, apice obſolete tridentato.

Elytra teſtacea uti lignum.

Alæ albæ.

Abdomen teſtaceum, oblongum ſegmentis ſex: in medio ſinguli ſegmenti macula triangularis, angulo anum reſpiciente.

Feminæ margo valde marginatus.

Setæ in Cauda, duæ, breves, disjunctæ, pallidæ.

Pedes *anteriores* craſſi, cheliformes, figura noſtratum: Digitis lineis 2 ſ. 3 obliquis inſculptis.

poſtici lateribus piloſi.

2.

2. NEPA fuſca, abdomine ſupra alarumque nervis rubris. *Syſt. Nat.* 440. *n.* 2. rubra.

Habitat - -. -

Corpus facie noſtratis Nepæ cinereæ.

Thorax ſordidus, parum rugoſus, antice & poſtice emarginatus.

Elytra fuſco-ſordida.

Alæ albæ vaſis majoribus ſangvineis.

Abdomen a tergo ſangvineum.

Cauda in quibusdam ſeta duplici.

fuſca. 3. NEPA fuſca, ſcutello rugoſo, alis niveis. *Syſt. Nat.* 440. *n.* 3.

Habitat - - -

CORPUS ut in congeneribus, ſed noſtrate duplo majus.

THORAX ſupra longitudinaliter elevato-rugoſus, antice poſticeque emarginatus.

ELYTRA fuſca.

ALÆ albæ.

ABDOMEN ſupra ovatum.

CAUDA ſetis duabus, longitudine abdominis.

PEDES antici, ſub antica parte thoracis reconditi, ſunt cheliferi.

CI-

CIMEX.

1. CIMEX ſcutello abdomen operiente viridi maculis nigris. *Syſt. Nat.* 441. *n.* 2. Stockerus.

Pet. gaz. 34. *t.* 21. *f.* 12. Stockerus bengahlenſis viridis nigro maculatus.

Habitat in *Aſia.*

Corpus ovatum, undique obtuſum, obſcure viride ſ. cæruleo-viride.

Antennæ nigræ.

Thorax lateribus vix angulatus, a tergo maculis ſ. punctis: tribus anterioribus nigris minoribus; tribus vero poſterioribus nigris majoribus.

Scutellum nigrum, figura & magnitudine abdominis, totum abdomen tegens, convexum, obtuſum, maculis octo notatum: 3 rotundatæ ad utrumque latus tergi; 1 oblonga in medio dorſi; 1 transverſa in ano.

Elytra fuſca.

Alæ fuſcæ.

Abdomen ſubtus cæruleum, in medio tectum macula lata, obtuſa, utrinque dentata, flaveſcente.

arabs. 2. CIMEX scutello longitudine abdominis, thorace spinoso, corpore ovato livido, ano bidentato. *Syst. Nat.* 442. *n.* 6.

Sloan jam. 2. *t.* 237. *f* 15. 16. Cimex sylvaticus foetens viridis triangularis? (at thoracis latera in nostro obtusiora).

Habitat in *Arabia.* D. Hasselquist.

CORPUS inter majora numerandum, subtus flavescens.

Flavescenti-pallida sunt Caput, Thorax, Scutellum.

THORACIS latera exeunt in acumina elongata, obtusa, apice nigra.

SCUTELLUM longitudine fere abdominis, acutissimum.

ALÆ griseæ.

ABDOMEN postice exit in dentes 2, acutos.

3.

3. CIMEX ſcutello longitudine abdominis, thorace ſpinoſo, corpore livido, abdominis marginibus ſerratis. *Syſt. Nat.* 442. *n.* 7. ſerratus.

Habitat in *Arabia*. D. Haſſelquiſt.

Caput parvum, griſeum.

Antennæ flavæ, corpore breviores.

Thorax griſeus utrinque exit in ſpinam validam.

Scutellum griſeum, acuminatum, abdomine paulo brevius.

Alæ complicatæ, ſubcæruleſcentes, juxta Scutellum ſtriatæ.

Abdomen alis paulo latius, margine acute ſerratum, ſerraturis ruſcis. Subtus totum inſectum ferrugineum lineis latis bifidis flavis; & ad marginem maculis rotundis flavis.

Pedes toti anguſti, ferruginei.

ſtolidus. 4. CIMEX ſcutello longitudine abdominis, thorace ſubangulato, corpore ſupra viridi, ſubtus flavo, ano bidentato. *Syſt. Nat.* 442. *n.* 8.

Habitat in *Indiis*.

Corpus magnitudine mediocri.

Viridia & lævia ſunt Caput, Thorax, Scutellum.

Thorax lateribus parum angulatus.

Scutellum longitudine fere abdominis.

Elytra griſea ſ. ſubferruginea.

Alæ hyalinæ.

Abdomen ſupra atro-cæruleſcens lateribus viridibus; ſubtus flaveſcens.

Pedes flaveſcentes.

5.

5. CIMEX oblongus niger, thorace ſpinoſo, femoribus poſticis incurvis, tibiisque poſticis unidentatis. *Syſt. Nat.* 444. *n.* 25. valgus.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Antennæ filiformes, nigræ, articulo 2 & 3 apice baſique rubro; 4 toto rubro.

Corpus totum ferrugineo-nigrum, obſcurum, inter maximos in hoc Genere.

Thoracis latera angulis acutis mucronata.

Alæ pone crucem atræ, auro nitentes.

Abdominis baſis ſubtus notata prominentiis ſ. mucronibus quatuor, quod in hac Specie ſingulare: ſcilicet in ſegmento 1 & 2 utrinque ſubtus ſpina brevis.

Femora poſtica magna, craſſa, clavata, incurvata.

Tibiæ poſticæ compreſſæ, interiore margine ſpina notatæ.

6.

viridulus. 6. CIMEX rotundatus, ſupra flavus punctis viridibus, ſubtus viridis. *Syſt. Nat.* 444. n. 28.

Habitat in *Indiis*.

Corpus magnitudine Cimicis foetidi.

Flava a tergo ſunt Caput, Thorax, Scutellum.

Puncta viridia: duo & tria in thorace.

unum in ſingulo elytro;

unum ad apicem Scutelli;

unica macula verſus baſin Scutelli.

Thorax lateribus parum angulatus.

Viridia ſunt Abdomen & Pedes.

7. CIMEX ſuborbiculatus depreſſus griſeo pallidoque varius, thorace ſcabro. *Syſt. Nat.* 444. *n.* 29. peregrinator.

Habitat in *Indiis*.

Corpus latitudine ſeminis Lupini albi, colore ubi griſeum ſemper ſcabrum, ubi flavum ſemper lævc.

Antennæ articulis tribus, nigræ, longitudine fere corporis, annulis duobus albidis.

Thorax lateribus ſubangulatus, ſupra cicatrizatus punctis excavatis, ſcaber, griſeus, adſperſus punctis oblongis incurvis pallidis.

Scutellum griſeum, longitudine abdominis, ſuperficie thoracis, faſcia in medio flava glabra. Punctum flavum, calloſum, majus, ad angulum baſeos.

Alæ griſeæ.

Abdomen flaveſcens, marginatum margine utrinque maculis 4, quadratis, fuſcis, extra elytra conſpicuis.

Pedes flaveſcentes annulo uno alterove fuſco.

Singulare in hac ſpecie, quod color griſeus ſemper ſit ſcaber ex punctis excavatis; at flavus ſemper lævis, nec punctatus.

8.

bipunctatus. 8. CIMEX ovatus pallide griſeus: puncto albo utrinque ad baſin ſcutelli. *Syſt. Nat.* 444. *n.* 30.

Habitat in *Syria.* D. Haſſelquiſt.

Magnitudo Pediculi majoris ſ. Oryzæ.

Corpus ovatum, ſupra totum griſeum ex punctis vix conſpicuis, denſiſſimis, flavo fundo inſperſis.

Caput parvum.

Antennæ ſubclavatæ.

Thorax transverſim gibbus.

Scutellum ſemiovatum, apice ſubfuſcum, angulo baſeos utrinque albo, unde duo quaſi puncta alba pone thoracem.

Alæ glaucæ.

Abdomen pallide flaveſcens, margine ſubtus utrinque notatum punctis 6, fuſcis, minutiſſimis.

Pedes pallidi.

9.

9. CIMEX rotundatus luteo nigroque varius, thorace luteo punctis ſex nigris. *Syſt. Nat.* 444. *n.* 31. ſexpunctatus.

Habitat - - -

Caput parvum, nigrum, maculis duabus oblongis.

Thorax ſupra flavus, lateribus ſubangulatis. *Puncta* nigra 2 ad baſin; 2 juxta Scutellum; 1 ad utrumque latus. Pectus ſubtus nigrum linea transverſa, lutea, ante pedes.

Scutellum thorace longius, luteum, apice macula nigra bipartita.

Elytra Alæquæ nigra, faſcia transverſa lutea.

Abdomen ſubtus luteum, maculis marginalibus utrinque 4 nigris.

indus. 10. CIMEX oblongus, abdomine rubro bidentato, elytris fuscis striatis. *Syst. Nat.* 447. *n.* 52.

Habitat in *Indiis*.

Corpus inter maxima generis numerandum.

Caput parvum.

Antennæ nigræ, ad genicula albidæ.

Thorax cinereus, punctis excavatis, vix conspicuis.

Scutellum breve, acutum.

Elytra nigra striis quinque, longitudinalibus, linearibus, albidis.

Alæ nigræ.

Abdomen sanguineum, apice bidentato; ano nigro.

Pedes nigri.

Tibiæ flavescentes.

11. CIMEX oblongus rubro nigroque varius, alis fuſcis immaculatis. *Syſt. Nat.* 447. *n.* 54. equeſtris.

Faun. Svec. 2. *n.* 946.

It. Oel. 155. Cimex oblongus rubro nigroque variegatus.

Habitat in *America* ſeptentrionali. P. Kalm.

Inſectum idem cum europæo, a quo differt, quod americanum

1. magnitudine triplo majus.

2. caret, in alis pone crucem, maculis albis.

3. Thorax - - - ſolo margine laterali nigro.

ægyptius. 12. CIMEX oblongus rubro nigroque varius, elytris rubris puncto nigro. *Syſt. Nat.* 447. *n.* 56.

Habitat in *Ægypto.* D. Haſſelquiſt.

Corpus triplo minus C. Andreæ alias ſimillimum.

Caput nigrum.

Antennæ articulis quatuor, nigræ extimo articulo fuſco, paulo craſſiore.

Rostrum inflexum, rubrum.

Thorax ruber, tectus ſupra macula magna nigra; poſtice bifida; ſubtus ruber macula utrinque nigra.

Elytra craſſiora rubra puncto in medio atro; membranacea vero fuſca.

Abdomen rubrum, utrinque in ſingulo ſegmento ſubtus puncto nigro.

Pedes nigri.

13.

13. CIMEX oblongus ſangvineus, antennis tibiis roſtro alisque nigris. *Syſt. Nat.* 448. *n.* 57. Andreæ.

Sloan. jam. 2. *t.* 237. *f.* 29. 30. Cimex ſylveſtris oblongus e cinereo & nigro variegatus, ſupina parte cruce S. Andreæ notatus.

Habitat in *America* ſeptentrionali.

Sangvinea ſunt Caput, Thorax, Scutellum breve, Elytra, Abdomen, Femora.

Nigra Roſtrum, Alæ, Antennæ, Tibiæ.

Pectus rubrum lineis transverſis flavis.

rufcollis. 14. CIMEX oblongus flavus, capite antennis scutello alisque nigris, collari sangvineo.

Habitat - - - -

Sexu forte solo a C. Andreæ diversus.

Flavescentia Thorax, Elytra.

Nigra Caput, Scutellum, Alæ pone crucem.

Testacea Abdomen, Pedes.

Antennæ nigræ, ad genicula albæ.

Tibiæ fuscæ.

OR-

ORDO III.

LEPIDOPTERA.

Papilio.	Equites Troes.	1	18
	- Achivi.	19	38
	Heliconii -	39	54
	Danai candidi.	55	69
	- festivi.	70	90
	Nymphales gemmati.	91	104
	- phalerati.	105	130
	Plebeji rurales.	131	150
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Sphinx.	legitimæ.	1	20
	barbatæ.	21	
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Phalæna.	alis patulis.	1	14
	alis deflexis.	15	
	Geometræ.	26	33
	Tineæ.	34	

1. EQUITES TROES.

Priamus. 1. PAPILIO E. T. alis denticulatis tomentosis: primoribus supra viridibus: macula atra; posticis maculis sex nigris. *Syst. Nat.* 458. *n.* 1. * *Amœn. acad.* 5. *t.* 3. *f.* 203. *Clerck. rar. t.* 17.

Mus. petrop. 664. Papilio s. Atlas amboinensis, alis superioribus holosericc nigris: institis viridibus.

Vincent. mus. 10. Papilio amboinensis viridi & nigro holosericeus insignis.

Habitat in *Amboina.*

CORPUS primæ magnitudinis, *inter Lepidoptera omnia splendidissimum & vere augustum Insectum, satinum provocans holosericea villositate, alarum solidiore textura, coloribus purissimis, ut dubitem utrum natura pulchrius spectaculum inter Insecta produxerit.*

CAPUT nigrum.

ANTENNÆ - - - - -

THORAX niger lateribus lineis transversis coccineis (*hinc judico Papilionem, non Phalænam*).

ABDOMEN flavissimum.

PEDES nigri.

ALÆ *Primores supra* virides margine undique nigræ.

Macula nigra, ovali-oblonga, magna, longitudinalis, in disco alæ

Subtus nigricantes.

Macula viridis, linearis, versus marginem anteriorem & apicem.

Macula viridis, duplicata, parva, subovata, in medio disci.

Macula viridis, magna, occupans discum versus marginem posticum in qua

Puncta 6, nigra, oblonga, longitudinaliter fere concatenata.

Posticæ supra virides margine nigro.

Maculæ 4, nigræ, versus marginem posteriorem.

Macula fulva, major, tecta a primoribus alis.

Subtus virides, margine nigro, dentato.

Maculæ 6, nigræ, rotundatæ, intra marginem.

Macula fulva, oblongior, ante priores.

Margo interior niger lana ferruginea longissima, ut in Phalænis.

2. PAPILIO E. T. alis caudatis concoloribus nigris: primoribus fascia alba; posticis maculis rubris. *Syst. Nat.* 459. *n.* 2. *Clerck. t.* 33. *f.* 1. Hector.

Habitat in *India* orientali.

Corpus primæ s. secundæ magnitudinis.

Caput nigrum, fronte coccinea.

Antennæ nigræ.

Thorax niger lateribus rubro pictis.

Abdomen nigrum, subtus rubrum.

Pedes nigri.

Alæ omnes nigræ.

- *Primores* utrinque concolores:
  Fascia ex Maculis 8, albis, ovalibus, bifidis.
  Versus apicem alæ Maculæ 4, albæ, bifidæ, confertæ.
  Margo exterior alæ albidus.

- *Posticæ* utrinque concolores nigræ.
  Maculæ coccineæ, retrorsum lunatæ, duplicem in arcum digestæ: in exteriore arcu 6, in interiore 7.
  Margo postice serrato-dentatus, caudatus, sinubus albis.
  Colores in pagina inferiore vivaciores sunt.

Paris. 3. PAPILIO E. T. alis caudatis nigris: posticis macula cærulea ocellis septem. *Syst. Nat.* 459. *n.* 3. *Clerck. t.* 13. *f.* 1.

Knorr. delic. t. C. 3. *f.* 1.

Habitat in *India* orientali.

Corpus secundæ magnitudinis.

Antennæ nigræ, subclavatæ.

Caput virescens, pone oculos macula alba & puncta duo alba inter oculos.

Thorax niger, a tergo atomis viridibus adspersus.

Abdomen nigrum, supra virescens.

Pedes sex, nigri.

Alæ *Primores supra* nigræ atomis viridibus.

- *Subtus* nigræ; versus exteriora lineis plurimis albidis.

• *Posticæ* dentatæ caudatæ.

- *Supra* nigræ atomis viridibus; disco cæruleo nitido.

Fascia viridis a macula disci ad ocellum anguli ani, angusta.

Ocellus niger iride lunari purpurea ad angulum ani.

- *Subtus* nigræ, atomis albis, versus marginem exteriorem lineolæ albidæ parallelæ.

Ocelli intra marginem posticum septem, nigri, iride fulva cærulescente.

4.

4. PAPILIO E. T. alis caudatis: posticis macula alba: subtus tribus albidis lunulisque septem ferrugineis, *Syst. Nat.* 459. *n.* 4. *Clerck t.* 13. *f.* 2. Helenus.

Ehret. pict. t. 10.

Edw. av. t. 342.

Habitat in *India* Orientali.

Corpus secundæ magnitudinis, nigrum.

Antennæ clavatæ, nigræ.

Caput puncto albo pone oculos & punctis 2 albis inter oculos.

Thorax niger, collo punctis albis.

Pedes sex, nigri.

Femora nigra, altero latere alba.

Alæ *Primores utrinque* nigricantes, punctis albis in margine exteriore, obsoletis.

- *Posticæ supra* fuscæ.
  Macula in medio magna sinuata, ex tribus composita: antica minore.
  Maculæ duæ ad angulum ani, lunares ferrugineocæruleo circumdatæ.
  Margo inter dentes albus.
- *Subtus primores* nigræ lineolis albidis striatæ.
- *posticæ subtus* atræ.
  Maculæ sex ferrugineæ, ad marginem posticum, intra singulum dentem singulæ; at septima & octava ad angulum ani magis fulva, & rotundata.
  Maculæ, in disco versus marginem exteriorem, tres, majores, albæ: quorum antica minor, lunata.
  Cauda alarum posticarum oblonga, obtusa, nigra.

Polytes. 5. PAPILIO E. T. alis caudatis nigris concoloribus: posticis lunulis rubris maculaque quintuplici alba. *Syst. Nat.* 460. *n.* 7. *Clerck. t.* 14. *f.* 1.

Habitat in *Indiis*.

Similimus P. Heleno, sed minor, at maxime affinis.

Corpus tertiæ magnitudinis, nigrum.

Thorax niger, punctis albis adspersus. Puncta alba inter oculos & pone oculos.

Abdomen nigrum, utrinque linea alba longitudinali & punctis albis.

Alæ *Primores utrinque* concolores nigræ: margine exteriore subrepando sinubus albidis.

- *Posticæ utrinque* concolores, dentatæ: denticulo quinto elongato in processum obovatum.

Macula alba ex 5 composita, scilicet ex lobis 4 oblongis parallelis & rotundata, baseos.

Sinus inter dentes alæ margine albo.

Lunulæ septem, rubræ, intra dentes alæ, præter

Maculam magnam rubram, in qua punctum nigrum, ad angulum ani positum.

6. PAPILIO E. T. alis caudatis nigris: primoribus punctis marginalibus pallidis; posticis ſubtus maculis fulvis. *Syſt. Nat.* 459. *n.* 5. Troilus.

Habitat in *America* ſeptentrionali. P. Kalm.

Corpus tertiæ magnitudinis, nigrum.

Caput nigrum: Puncta 2 alba in vertice.

Antennæ nigræ.

Thorax niger. Puncta 2 alba a tergo.

Abdomen nigrum. Puncta alba ſerie duplici ad latera digeſta.

Pedes nigri.

Alæ *Primores ſupra* nigræ.
Puncta ad marginem 8, flava ſ. vireſcentia.
(Quibusdam Faſcia longitudinalis ex maculis trigonis flavis).

- *Subtus* fuſcæ; punctis marginalibus ut a pagina ſuperiore.
Faſcia transverſa ex maculis trigonis, fulvis ſ. viridibus.

- *Poſticæ ſupra* nigræ, extrorſum cæruleo-vireſcentes.
Maculæ marginales lunatæ, 8, virides ſ. flavæ.
Angulus ani exciſus macula ſemiocellari ſangvinea.
Cauda alæ obtuſa.

- *Subtus* baſin verſus fuſcæ; extrorſum cæruleo-vireſcentes.
Maculæ plurimæ fulvæ in diſco & octo in margine.

7.

Deiphobus. 7. PAPILIO E. T. alis caudatis nigris: ſubtus baſi rubro maculatis; poſticis maculis ſeptem rubris ſubannularibus. *Syſt. Nat.* 459. *n.* 6. *Clerck. t.* 25.

Ebret. pict. t. 25. *f.* 1.

Edw. av. t. 346.

Habitat in *India* orientali.

Corpus primæ ſ. ſecundæ magnitudinis, nigrum, ſimillimum P. Agenori, ſed alis caudatis.

Antennæ clavatæ, nigræ.

Pedes nigri.

Alæ *omnes ſupra* nigræ radiis venarum fuſceſcentibus, falcatæ, repandæ.

- *Primores ſubtus* nigræ: baſi macula lanceolata, rubra.

  Lineæ longitudinales, plurimæ, parallelæ, albidæ, juxta marginem exteriorem.

- *Poſticæ ſubtus* nigræ, obtuſe dentatæ, cauda oblonga obtuſa.

  Maculæ marginales, pallide rufæ, annulares, medio nigræ, quarum exteriores tantum arcuatæ.

Obſ. Alæ poſtice ſupra, inter venas nigras, albidæ ſ. flaveſcentes maculis nigris.

8.

8. PAPILIO E. T. alis caudatis nigris coloribus: omnibus margine maculat s; p- ſticis faſcia maculis ſeptem albis. *Syſt. Nat.* 460. *n.* 8. *Clerck. t.* 14. *f.* 2. Pammon.

Habitat in *Indiis.*

Corpus tertiæ magnitudinis nigrum.

Caput inter & pone oculos punctis albis.

Thorax niger collo albo-punctato.

Alæ nigræ, dentatæ.

- *Supra Primores* nigræ: margine poſtico punctis 6. f. 7. albis.

- *Poſticæ* poſtice dentatæ & caudatæ.

Faſcia alba transverſa ex maculis 7, albis, parvis, ovalibus, parallelis.

- *Subtus Primores* nigræ punctis inter dentes albis novem.

- *Poſticæ* nigræ.

Faſcia in medio, e maculis ſeptem albis ovatis.

Puncta in diſco poſteriore ſex ſubferruginea.

Lunula alba inter ſingulos alæ dentes.

9.

Glaucus. 9. PAPILIO E. T. alis ſubcaudatis nebuloſis concoloribus: primoribus macula flava; poſticis macula ani fulva. *Syſt. Nat.* 460. *n.* 9. *Clerck. t.* 24. *f.* 1.

Habitat in *America* ſeptentrionali. P. Kalm.

Corpus ſecundæ magnitudinis, totum nigrum.

Antennæ clavatæ.

Alæ *Primores* utrinque fuſco-nebuloſæ.
Macula flava, ſubreniformis, in medio.
Puncta ad marginem exteriorem, octo pariùm: interioribus flaveſcentibus; exterioribus ſ. marginalibus albis.

- *Poſticæ* admodùm dentatæ, at unicus dens reliquis longior & fere caudatus.

- *Supra* faſcia linearis, undata, transverſa, nigra.
Area interior fuſca atomis griſeis.
Area exterior atro-cæruleſcens.
Angulus ani exciſus fulvus.
Lunulæ flaveſcentes intra dentes.

- *Subtus* cinereæ.
Linea bifida, fuſca, transverſa, in area anteriore.
Lunulæ marginales 7, fulvæ.

10.

10. PAPILIO E. T. alis dentatis nigris coloribus: posticis maculis septem coccineis ovatis. *Syst. Nat.* 460. *n.* 10. *Clerck. t.* 29. *f.* 1. Anchises.

Merian. surin. 17. *t.* 17.

Edw. av. 207. *t.* 207.

Ehret. pict. t. 9.

Habitat in *America* meridionali.

Corpus secundæ magnitudinis.

Caput & Rostrum nigrum, basi utrinque rubrum.

Antennæ nigræ, clavatæ.

Thorax niger, ad latera rubro-maculatus.

Abdomen nigrum, lateribus rubro-maculatis.

Pedes nigri.

Alæ utrinque nigræ.

- *Primores* immaculatæ vel parum in medio obsolete albidæ.

- *Posticæ* obsolete dentatæ, inter sinus dentium margine albo.

  Maculæ septem, purpureæ, in arcum versus marginem posticum digestæ: quarum laterales rotundiores minores; ad angulum ani quasi quinatæ.

Polydamas. 11. PAPILIO E. T. alis dentatis nigris fascia interrupta flava, posticis subtus rubro notatis. *Syst. Nat.* 460. *n.* 11.

Merian. surin. 31. *t.* 31.

Habitat in *India* occidentali.

Corpus secundæ magnitudinis, nigrum, rubro punctatum.

Antennæ nigræ.

Alæ *supra* omnes nigræ, margine inter dentes luteo.

- *Primores* subfalcatæ; *Posticæ* dentatæ.

  Fascia lutea ex maculis numerosis, parallelis, sagittatis, ducta ab angulo ani alarum posticarum ad apicem anticarum: in priori ala fascia ex 9, in posteriori ex 8 maculis.

- *Subtus* alæ omnes fuscæ.

  In *Primoribus* relucet fascia pallida.

  Posticæ fuscæ venis nigris. Intra dentes alarum posticarum Maculæ septem, coccineæ, lineares, undatæ s. characterem ʒ referentes.

12.

12. PAPILIO E. T. alis dentatis nigris: omnibus basi subtus rubro maculatis. *Syst. Nat.* 460. *n.* 12. Memnon

Habitat in *Luzonum* insulis.

Corpus secundæ magnitudinis, nigrum Capite, Thorace, Abdomine, Pedibus; at Thorax albo-punctatus.

Antennæ nigræ, subfiliformes.

Alæ nigræ, omnes longitudinaliter obsolete cæruleo striatæ.

- *Primores* atræ, concolores.

- *Subtus* ad basin macula parva, obovata, rubra.

- *Posticæ* atræ;

- *Subtus*, versus, marginem posticum, nigro cinerascentes:

Maculæ sex parium, subrotundæ, rubræ, ocellatæ.
Maculæ 4, sanguineæ, ad basin.

Varietas forte cujus basis alæ subtus rubra venis nigris, & ad angulum ani Ocelli duo iride rubra.

Agenor. 13. PAPILIO E. T. alis dentatis nigris basi sanguineis; posticis disco albo maculis nigris. *Syst. Nat.* 460. *n.* 13. *Clerck. t.* 15.

Habitat in *Asia: China.*

Corpus facile primæ magnitudinis, simile P. Delphobo.

Antennæ subfiliformes.

Thorax albis punctis. *Pectus* striis cæruleſcentibus.

Alæ *Primores* concolores, nigræ, albido-subradiatæ, s. albedine nervos nigros distinguente, versus alas posticas magis, quam antice aut versus apices.

Basis alarum macula cuneiformi s. obovata, sanguinea, utrinque cum Puncto oblongo, sanguineo, pone maculam.

Margo exterior lineola alba terminatus.

Posticæ subconcolores, repando-dentatæ, nigræ: nigredine ampliore subtus, quam supra.

Discus albus, divisus nigris nervis in areas sex, oblongas, fere sagittatas; in singulis tribus albis postice macula oblongiuscula, nigra, antice posticeque retusa.

Ad sinus marginis, inter dentes, lunulæ septem.

Versus angulum ani albedo tingitur luteo colore.

Basis alarum supra nigra, subtus maculis 4 diformibus, sanguineis, uti in Pap. Memnone.

14. PAPILIO E. T. alis dentatis nigris concoloribus: primoribus albo maculatis; posticis maculis albis nigra fœtis. *Syst. Nat.* 461. *n.* 16. *Clerck. t.* 18. & 19. Panthous.

Pet. gaz. t 2. *f.* 2. Papilio luzonicus maximus nigrescens, maculis coccineis subtus perbelle notatus.

Habitat in *India* orientali.

Corpus primæ magnitudinis, simile P. Agenoro.

Caput nigrum. *Lingua* nigra.

Antennæ nigræ, filiformes, vix manifeste clavatæ.

Thorax niger, lateribus basi lineis coccineis.

Abdomen flavum, punctis s. spiraculis nigris.

Pedes nigri.

Alæ omnes utrinque concolores, nigræ.

. *Primores utrinque* nigræ, subrepandæ, transversim notatæ Maculis 8, albis, oblongis, sagittatis, quarum omnes, exceptis 3 primis, interruptæ.

. *Posticæ utrinque* nigræ.

Fascia albida ex Maculis 6, oblongis, sagittatis, parallelis, albis, basi sæpe flavis: quarum 4 posteriores Maculam cordato - subrotundam nigram in medio habent; at duæ exteriores, ad latus exterius, macula in medio carent & magis flavescunt.

SEXUS alter in non paucis differt a priori.

Thoracis latera non rubro colore notata.

Alæ Primores nigræ, utrinque exaratæ Lineis parallelis, albis, basi per paria conjunctis.

. *Posticæ* cinguntur maculis 7, sagittatis: quarum 1. s. extima subrotunda, flava; 2. 3. 4. flavæ, in medio Macula alba; 5. 6. 7. albæ, sagittatæ, in medio & basi macula ovata nigra.

Affinis P. Deiphobo & Agenori.

Sarpedon. 15. PAPILIO E. T. alis dentatis nigricantibus fascia viridi: posticis subtus linea baseos maculisque quinque rubris. *Syst. Nat.* 461. *n.* 14.

Habitat in *Indiis*.

Corpus magnitudinis tertiæ, supra nigrum, subtus cinereum.

Abdomen utrinque lineis duabus albis.

Alæ *supra omnes* nigræ.

Fascia viridis ab apice alæ primorum ad anum posticarum ducta. Apice hæc interrupta est.

Lunulæ 5, virides, juxta marginem alarum posticarum.

– *Subtus omnes* fuscæ.

Fascia & lunulæ uti supra.

Macula rubra, linearis, ad basin posticarum.

Maculæ 5, oblongæ, rubræ, ante lunulas virides, cum circumjecta nigredine.

16.

16. PAPILIO E. T. alis dentatis atris: primoribus supra macula viridi; posticis macula palmata sanguinea. *Syst. Nat.* 461. *n.* 15. Æneas.

Rœs. inf. 4. *t.* 2. *f.* 2.

Habitat in *Asia.*

Corpus mediæ magnitudinis, nigrum.

Caput nigrum.

Antennæ nigræ, subclavatæ, sensim extrorsum crassiores.

Thorax niger punctis sanguineis ad latera.

Abdomen nigrum, antice ad latera punctis sanguineis.

Alæ *Primores supra* atræ, integræ, versus marginem interiorem Macula rotunda, viridi-ænea, nitente.

Subtus atræ.

- *Posticæ supra* atræ, dentatæ:
Macula f. discus sanguineus, versus posteriora palmatus digitis 4 obtusis.

Subtus maculis 5, sanguineis, parvis, oblongiusculis, transversim digestis.

Pandarus. 17. PAPILIO E. T. alis ſubdentatis nigricantibus albo-maculatis concoloribus; poſticis flavis: ocellis ſeptem nigris. *Syſt. Nat.* 461. *n.* 17.

Habitat in *Indiis*.

Corpus ſecundæ magnitudinis, una cum artubus nigrum.

Palpi nigri linea alba.

Alæ *Primores ſupra* nigræ:
Intra marginem poſticum Maculæ 5, albæ, didymæ, parvæ.
Ante has Maculæ 8, albo-cæruleſcentes.
Ante has Maculæ 5, majores, ovatæ.

Subtus ſimiles, at extrorſum pallidiores.
Maculæ didymæ, 8, marginales.

Poſticæ margine repando, nigro variegato.

Supra diſco flavæ, baſi nigricantes.
Ocelli 7, nigri pupilla cærulea, ſerie transverſa digeſti, quorum ultimus verſus angulum ani pupilla gaudet duplici.

Subtus ſimiles paginæ ſuperiori, ſed pallidiores.

18. PAPILIO E. T. alis dentatis atris concoloribus: poſticis diſco communi aurato. *Syſt. Nat.* 461. *n.* 18. *Clerck t.* 22. *f.* 1. Helena.

Merian. ſurin. in tabula titulo præfixa (figura quæ ibi maxima).

Habitat in *America* meridionali, in Palma.

Corpus primæ magnitudinis, nigrum.

Antennæ nigræ, ſubclavatæ, obtuſæ.

Thorax niger, cinctus collo linea coccinea anguſtiſſima.

Abdomen ſupra nigrum, lateribus coccineo maculatum, ſubtus flavum.

Pedes nigri.

Alæ *Primores utrinque* nigræ.

Poſticæ utrinque nigræ, obtuſe dentatæ.

Diſcus utrinque aureo-flavo rutilans, ambitu dentatus, campo venis nigris exaratus; Diſcus hic flavus ad Solem auri inſtar relucet.

2. EQUITES ACHIVI.

Menelaus.

19. PAPILIO E. A. alis dentatis: ſupra cæruleis nitidiſſimis; ſubtus nebuloſis: punctis fuſcis. *Syſt. Nat.* 461. *n.* 19. *Clerck. t.* 21. *f.* 1.

Merian. ſurin 53. *t.* 53.

Habitat in *America* meridionali

Corpus primæ magnitudinis.

Antennæ nigræ, clavatæ.

Alæ *Primores ſupra* cæruleæ, nitidiſſimæ, apice fuſcæ.

Punctum 1. ſ. 2, album, verſus apicem.

- *Subtus* fuſco-ſubnebuloſæ puncto ocellari majuſculo fuſco, in medio alæ.

- *Poſticæ ſupra* cæruleæ, nitidiſſimæ, margine inferiore fuſco.

- *Subtus* ſubnebuloſæ ocellis 5, fuſcis, iride rubra.

Sexus alter Alis *ſubtus* griſeis; ocellis in primoribus 2, in ſecundariis 3, omnibus nigris, iride rubra, pupilla alba.

Cæruleus alarum color in pagina ſuperiore nitidus ac politus, ut adeo fulgidus color cæruleus vix in alio creato objecto occurrat.

20.

20. PAPILIO E. A. alis caudatis nigris: disco cæruleo radiante; posticis subtus ocellis septem. *Syst. Nat.* 462. *n.* 20. *Clerck. t.* 23. *f.* 1. Ulysses.

Habitat in *America* meridionali.

Corpus primæ magnitudinis, nigrum.

Antennæ nigræ.

Pedes nigri.

Alæ omnes *supra* atræ disco cæruleo aut viridi, dentato;

- *Subtus* fuscæ disco nigricante.

- *Primores supra* atræ, a basi ultra medium tectæ Macula magna, cærulea, nitidissima, septemdentata. Alæ hæ superiores singulari methodo notatæ Maculis septem, lanceolatis, parallelis, acutis, fulcis, in area nigra, quæ intrant sinus areæ cæruleæ.

- *Subtus* a basi ultra medium nigræ & fere nebulosæ atomis albis.

- *Posticæ supra* atræ, a basi ultra medium tectæ Macula magna, cærulea, sexdentata.

- *Subtus* a basi ultra medium nigræ; in medio nebulosæ atomis albis.

Ocelli 7, grisei, antice violaceo-albi, intra marginem dispersi.

Posticus margo obtuse dentatus, postice exit processibus duobus lanceolatis obtusis nigricantibus.

Ani angulus subtus macula ferruginea.

Agamemnon. 21. PAPILIO E. A. alis caudatis nigris viridi-maculatis; poſticis ſubtus ocello lunato maculisque rubris. *Syſt. Nat.* 462. *n.* 21.

Habitat in *China*. P. Osbeck.

Corpus tertiæ magnitudinis, ſupra fuſcum, ſubtus pallidum.

Antennæ nigræ, clavatæ.

Thorax lateribus vireſcentibus.

Pedes pallidi.

Alæ *ſupra* omnes nigræ punctis maculisque viridibus, ovatis, numeroſis, ſeriebus variis; juxta Corpus veros viridi lineati.

- *Subtus* fuſcæ, pallido-viridi maculatæ.

- *Poſticæ ſubtus* verſus baſin Ocello lunari nigro iride rubra, Maculisque nigris apice rubris.

Poſticæ hæ alæ angulato-caudatæ ſunt.

Angulus ani ſubtus ruber.

22.

22. PAPILIO E. A. alis caudatis nigris: supra introrsum viridibus; posticis lunulis cyaneis. *Syst Nat.* 462. *n.* 22. Diomedes.

Habitat in *Indiis.*

Corpus primæ magnitudinis.

Alæ *Primores supra* nigræ, versus basin cyaneæ.

- *Subtus* dimidio basin versus nigræ, altero dimidioexteriore cinereo-fuscæ.

- *Posticæ supra* nigræ; Area versus basin cyanea.
Lunulæ 6, cyaneæ, intra dentes.
Cauda alæ obtusa, extrorsum latior.

- *Subtus* area baseos fusca; Area intermedia dilutior; Area extima pallidior.
Maculæ marginales 6, semiocellatæ ex cæruleo & albo incarnato.

Patroclus. 23. PAPILIO E. A. alis caudatis concoloribus fuſcis: faſcia lineari alba apicibusque albis. *Syſt. Nat.* 462. *n.* 23. *Clerck.* *t.* 37. *f.* 1.

Habitat in *Indiis.*

Corpus primæ magnitudinis, pallidum.

Lingva valde ſpiralis.

Antennæ nigræ, filiformes, nec capitatæ.

Alæ *Primores* concolores, fuſcæ.

Coſta marginalis antica nigra, transverſim albo ſtriata.

Linea transverſa alba.

* *Poſticæ ſupra* fuſcæ, extrorſum nigro nebuloſæ.

Linea transverſalis pallida.

* *Subtus* concolores ſed magis ſtriato-nebuloſæ.

Dentes quinque, acuminati, apice nivei, quorum ſecundus ab ano reliquis longe major in caudam exit.

24. PAPILIO E. A. alis bicaudatis fuſcis: faſcia communi alba: primorum dimidiata. *Syſt. Nat.* 462. *n.* 2. *Clerck. t.* 25. *f.* 24. Pyrrhus.

Habitat in *Indiis.*

Corpus ſecundæ magnitudinis.

Antennæ nigræ.

Alæ *ſupra* omnes nigræ.

Puncta aliquot alba intra margines.

Faſcia albicans, lata, ab angulo ani poſticarum ad medium diſcum primorum.

Angulus ani flaveſcens.

- *Subtus* omnes variegatæ e griſeo, nigro, albo.

- *Poſticæ* dentatæ: verſus ani regionem Dentibus duobus longioribus, adeoque bicaudatæ.

Margo flavus; intra quem Lunulæ tres rufæ at quarta remotior.

Leilus. 25. PAPILIO E. A. alis caudatis concoloribus nigris: fascia lineisque viridibus nitentibus numerosis. *Syst. Nat.* 462. *n.* 25. *Clerck. t.* 27. *f.* 1.

Sloan. jam. 2. *p.* 215. *t.* 239. *f.* 11. 12.

Merian. surin. 29. *t.* 29. in Citro.

Habitat in *America* meridionali.

Corpus secundæ magnitudinis, atrum.

Antennæ setaceæ, atræ.

Alæ *Primores* integræ, supra & subtus nigræ.

Fascia transversa, viridi-cærulea, nitens.

Lineæ plurimæ, transversæ, viridi-cæruleæ, nitentes, præsertim intra fasciam.

Posticæ nigræ, nitentes, dentatæ.

Margo posticus profunde dentatus, albus, in caudam canaliculatam albam costa nigra exiens.

Fascia dentata, viridi-cærulea, nitens, a fascia alæ primoris versus caudam alæ ducta.

Subtus nigræ, fere reticulatæ lineis transversis cæruleo-viridibus; margine alæ albo.

Quamvis Antennæ *setaceæ nec clavatæ, quod singulare, tamen erit* Papilio *ex facie, quod confirmat Larva spinis hispidis longis vestita, & alæ caudatæ.*

26.

26. PAPILIO E. A. alis caudatis concoloribus flavis: fasciis margineque nigris, caudis albis longitudine alæ. *Syst. Nat.* 463. *n.* 28. Antilochus.

Pet. muſ. 503. Papilio caudatus maximus carolinianus umbris ſtriisque nigris.

Catesb. car. 2. *p.* 83. *t.* 83.

Habitat in *America* ſeptentrionali. P. Kalm.

Corpus tertiæ magnitudinis.

Abdomen flavum, Dorſo nigro, Lateribus lineis duabus utrinque nigris.

Pedes & Antennæ nigræ.

Alæ *Primores* flavæ.
Margo exterior niger, notatus Punctis 8, flavis, longitudinalibus.
Faſciæ 4 ad marginem anteriorem, abbreviatæ, quarum interior excurrit ad angulum ani.

Poſticæ flavæ, extrorſum nigræ.
Margo dentatus: dente unico in caudam obtuſam elongato.
Inter dentes Lunulæ 7, flavæ.
Faſcia nigra in medio bifurcatur & iterum connectitur.
Linea transverſa ſubfuſca a pagina inferiore.
Angulus ani fulvus ſemiocellatus.

OBS. PAPILIO Machaon parum ſpecie ab Antilocho videtur differre, quamvis diſtingvantur ſequentibus.
1. Faſcia majore
2. Faſciis alæ primoris 4, nec 3, præter fuſcam ad thoracem, quæ minor eſt in Americano.
3. Cauda alæ obtuſa, nec acuta.
4. Linea transverſali fuſca, quæ in Europæo deeſt.

Inquirant Americani, quo alimento utitur hæc earum ſpecies.

27.

Podalirius. 27. PAPILIO E. A. alis caudatis subconcoloribus flavescentibus: fasciis nigricantibus geminatis; posticis subtus linea sanguinea.

Raj. inf. III. *n.* 3.

Mer. eur. 163. *f.* 94.

Reaum. inf. I. *t.* II. *f.* 3, 4.

Ræs. inf I. *pap.* 2. *t.* 2.

Poda inf. 62. *t.* 2. *f.* 1. Papilio Sinen.

Habitat in *Brassica Europæ* australioris.

Corpus secundæ magnitudinis, P. Protesilao simillimum.

Thorax niger, utrinque flavescens linea laterali, ab oculis ad anum ducta, nigra.

Abdominis latera flava.

Antennæ clavatæ.

Alæ *Primores supra* flavæ: fasciis octo, nigricantibus: alternis dimidiatis.

Subtus flavæ: Fasciis sex, nigricantibus, quarum 3 & 5 abbreviata; 4 & 6 cineritie di ita. Margo exterior niger est.

Posticæ caudatæ, utrinque flavæ.
Margo posticus nigricans Lunulis 4, cæruleis.
Lunula ani præterea ocellaris, fulvo cincta.
Fascia nigra: linea intermedia rubra, a fascia primorum tertia ad ocellum ani ducta.
Linea nigra, abdomini parallela, ad marginem interiorem.
Striæ 2 f. 3, ad angulum exteriorem, nigricantes.
Cauda alæ acuta, subulata, nigra, ala dimidio brevior.

Differt a *P. Protesilao* linea rubra alarum non longitudine alæ, sed abbreviata, alaque dimidio breviore.

LARVA lutea, rufo-punctata, Capite cæruleſcente.

28.

28. PAPILIO E. A. alis caudatis ſubconcoloribus albidis: faſciis fuſcis: unica ſubtus ſanguinea, angulo ani rubro. *Syſt. Nat.* 463. *n.* 29. *Clerck. t.* 27. *f.* 2. Proteſilaus.

Pet. muſ. 50. *n.* 502. Papilio caudatus caroliniarus fuſcus, ſtriis palleſcentibus linea & maculis ſanguineis ſubtus notatus.

Catesb. car. 2. *p.* 100. *t.* 100.

Sloan. jam. 2. *p.* 218. *t.* 239. *f.* 17, 18.

Merian. ſurin. 43. *t.* 43.

β. *Seb. muſ.* 1. *t.* 11. *f.* 2.

Edw. 34. *t.* 34.

Habitat in *Carolina*, Jamaica.

CORPUS tertiæ magnitudinis, albidum.

ANTENNÆ fuſcæ ſ. ferrugineæ.

PEDES 6, pallidi.

ALÆ *Primores* concolores, albæ, margine exteriore integerrimo, falcato, nigro.

Faſciæ 5, nigræ, dimidiatæ, annexæ margini antico: extima ad angulum ani excurrente.

- *Poſticæ ſupra* albæ: margine poſtico dentato nigro.

ad angulum ani Macula coccinea, nigræ ſuperinducta.

ad marginem poſteriorem Lunulæ albidæ & 2 ſ. 3 cærùleſcentes.

Caudæ alæ nigræ, lineares, acutæ, longitudine totius alæ, margine exteriore albo.

- *Subtus* albæ.

Faſciæ duæ, fuſcæ, transverſæ, prope abdomen: harum exterior adſociatam habet lineam coccineam, quæ longitudinaliter inducta, ad angulum ani recurvata.

VARIETAS β. convenit cum præcedenti, ſed Alæ ſupra fuſcæ.

Faſciæ plurimæ, flavo-vireſcentes & verſus marginem exteriorem maculis punctisque luteo-vireſcentibus.

Subtus concolores.

Jaſon. 29. PAPILIO E. A. alis ſubcaudatis ſupra nigris: faſcia poſticisque maculis ſex viridibus. *Syſt. Nat.* 485. *n.* 171.

Habitat in *Indiis.*

Corpus ſecundæ magnitudinis, thorace & Abdomine ſupra nigris.

Antennæ nigræ annulis albis, confertiſſimis.

Pedes albidi.

Alæ *ſupra omnes* nigricantes, margine inter dentes albo.

Faſcia viridis, lata, oblique ab ano per alam inferiorem ad dimidiam anteriorem ducta.

Maculæ virides, quatuor, transverſæ, in ala primore ſparſæ.

Ordo e Maculis quatuordecim, viridibus, ovatis, parvis, ab angulo alæ primoris ad angulum ani ductus: harum anteriores minores obſoletiores; poſtrema linearis, undulata.

Latus interius alæ poſticæ, juxta abdomen, niveum.

Subtus omnes griſeæ maculis iisdem quibus ſupra, ſed albo-glaucis.

30. PAPILIO E. A. alis dentatis: ſupra nigris faſcia cærulea; ſubtus fuſcis: ocellis tribus quinisve. *Syſt. Nat.* 463. *n.* 32. *Clerck. t.* 24. *f.* 2. Achilles.

Merian. ſurin. 7. *t.* 7.

Knorr. delic. t. C. 2. *f.* 1, 2.

Habitat in Pſidio *Americæ.*

CORPUS primæ magnitudinis, nigrum.

ANTENNÆ nigræ, filiformes.

PEDES pallidi ſ. ferruginei, quorum quatuor majores, unguiculati.

ALÆ omnes *ſupra* faſcia lata cærulea vividiſſima utramque alam transverſaliter ſecante.

Primores ſupra margine exteriore punctis 5. ſ. 6, albis.

Subtus fuſcæ, griſeæ:

Faſciæ duæ, obſoletæ, lineares, undatæ, cinereæ, albo maculatæ.

Ocelli tres, nigri, iride flava nigra cinerea, pupilla alba, transverſum poſiti, quorum duo poſteriores majores propiores.

Poſticæ ſubtus fuſco-griſeæ lineis tribus, undatis, transverſis, obſoletis.

Dentes marginis linea ferruginea utrinque nigra.

Ocelli quatuor nigri, iride flava nigra cinereaque, pupilla alba; horum tres poſteriores minores propiores.

Teucer. 31. PAPILIO E. A. alis subrepandis lividiusculis, subtus nebulosis; posticis ocellis tribus: postremo maximo. *Syst. Nat.* 464. *n.* 33.

Merian. surin. 23. *t.* 23. in Musa.

Sloan. jam. 2. *p.* 219. *n.* 24.

Habitat in *America* meridionali.

Corpus secundæ magnitudinis.

Antennæ nigræ, subclavatæ.

Alæ omnes *supra* luridæ: antica medietate glauca, postica fusca.

subtus ex cinereo, flavo, fusco-nebulosæ lineis undatis tenuissimis.

Posticæ ocellis tribus; repando-crenatæ.

Ocelli duo, annulo nigro includente maculam fuscam antice lunarem albam; horum prior ocellus mediocris ad marginem alæ anticum; posterior vero in medio alæ, minimus.

Ocellus tertius maximus, ad angulum ani situs, fuscus, cinctus annulo albo flavescente, fusco.

32.

32. PAPILIO E. A. alis ſubcrenatis cæruleſcenti-fuſceſcentibus, ſubtus nebuloſis: ocellis duobus: poſtico magno flaveſcente. *Syſt. Nat.* 464. *n.* 34. *Clerck. t.* 20. *f.* 1. Idomeneus.

Pet. gaz. 43. *t.* 28. *f.* 1. Papilio ſurinamenſis maximus ſubtus perbelle oculatus & marmoratus.

Caterb. 539.

Merian. ſurin. 60. *t.* 60.

Habitat in *America* meridionali.

Corpus primæ magnitudinis.

Antennæ nigræ, anguſtæ; non clavatæ, tamen extrorſum craſſiores.

Alæ omnes *ſupra* cæruleſcenti-fuſcæ.
In medio verſus Corpus regnat color cyaneus.

- *Primores ſubtus* marmoratæ ſ. ſcolopaceæ linea albida, transverſa.
Faſcia transverſa, obſoleta cum ocello obſoleto.

- *Poſticæ ſubtus* marmoratæ, notatæ ocello poſtico magno, altero obſoleto.
Ocellus magnus niger, iride glauca nigraque in medio alæ.
Ocellus obſoletus ex macula fuſca, cum lunula alba inſcripta, ad marginem anteriorem ſita.

Demoleus. 33. PAPILIO E. A. alis dentatis fuſcis: maculis faſciaque maculoſa flavis; poſticis ocellis binis. *Syſt. Nat.* 464. *n.* 35.

Habitat ad *Cap. b. ſpei*, Tulbagh.

Corpus ſecundæ magnitudinis.

Antennæ nigræ, ſubclavatæ.

Thorax a dorſo Lineis duabus flavis; lateribus luteis: lineis duabus nigris obliquis.

Abdomen ſupra nigrum, ſubtus flavum, lineis nigris tribus longitudinalibus.

Pedes ſex perfecti.

Alæ *ſupra* omnes ex griſeo fuſcæ, adſperſæ atomis minutiſſimis flavis.

Puncta flava non tantum intra marginem, ſed & adhuc minora in ipſo margine, duplici itaque ſerie utrinque alas ambiunt.

Faſcia flava ab angulo ani poſticarum verſus apicem anteriorum ducta, ſed in anticis valde interrupta maculis ſparſis.

Angulus ani poſticarum Ocello nigro poſtice coccineo antice violaceo.

* *Subtus* omnes alæ concolores.

Primores baſi longitudinaliter luteo ſtriatæ.

Maculæ flavæ, ſparſæ intra marginem, majores quam a tergo.

Ocelli duo in poſticis: Prior ad marginem anticam cæruleſcens iride nigra, etiam a pagina ſuperiore conſpicuus, ſed ala primore obtectus. Poſterior ocellus ad angulum ani, poſtice ruber, ut in pagina ſuperiore.

Faſcia flava interrupta in poſticis ſubtus, tam ante, quam pone ocellos.

34.

34. PAPILIO E. A. alis dentatis: ſupra nigris faſcia viridi; ſubtus griſeo marmoratis. *Syſt. Nat.* 464. *n.* 36. *Clerck. t.* 29. *f.* 2. Demophon.

Habitat in *Indiis*.

Corpus ſecundæ magnitudinis, nigricans.

Antennæ nigræ, extrorſum parum craſſiores.

Pedes pallidi, forte ſex.

Alæ omnes ſupra nigræ Faſcia transverſali viridi-cærulea.

- *Primores ſupra* nigræ Macula magna, viridi, unica, a margine poſtico ad medium diſcum adſcendente & alia parva oblonga obliqua ſupra hanc verſus marginem anticum.

  - *Subtus* e griſeo pallidiore & ſaturatiore undatæ ſ. nebuloſæ cum Puncto obſoleto faſco verſus baſin anteriorem.

- *Poſticæ* ſubdentatæ, *ſupra* faſcia transverſali cyanea latiore.

  - *Subtus* e griſeo pallidiore & ſaturatiore diſtincto lineis nigricantibus flexuoſis & Puncto nigro verſus baſin.

MAS intra alarum poſticarum marginem poſticum habet Puncta 5 alba.

FEMINA intra alarum poſticarum marginem poſticum habet ocellos 2 iride luteo alba, pupilla alba, quorum alter verſus angulum anteriorem; alter vero verſus angulum poſticum.

Eurypylus. 35. PAPILIO E. A. alis dentatis nigris concoloribus: fascia interrupta viridi; posticis subtus rubro maculatis. *Syst. Nat.* 464. *n.* 36. *Clerck. t.* 28. *f.* 2.

Habitat in *Indiis*.

Corpus fuscum.

Antennæ nigræ.

Alæ *Primores supra* atræ.

Fascia longitudinalis ex Maculis 7, quadratis, viridibus, parallelis, approximatis, versus apicem sensim minoribus.

— *Subtus* concolores, at pallidiores; insuper Maculæ 6, nigro-sanguineæ in disco, & unica juxta basin.

Posticæ supra atræ.

Fascia Primorum continuata Maculis tribus viridibus ad basin, quarum prima lutea, secunda rhombea, posterior lanceolata.

Lunulæ 6, virides, angustæ, intra marginem posticam (qui obsolete dentatus), quarum prima & ultima albæ.

— *Subtus* fuscæ s. pallidiores iisdem maculis.

Varietas forte Sexus differentia? quum Magnitudo, Statura, Coloris loeus determinatus, rubræ Maculæ in posticis eadem sint.

Differt Maculis albis loco viridium.

Punctis intra marginem anteriorem & exteriorem albis, nec viridibus.

Punctis albis in alis secundariis, nec Lunulis viridibus.

36. PAPILIO E. A. alis dentatis nigris fascia: inaurata viridi; subtus nigricantibus. *Syst. Nat.* 464. *n.* 38. *Clerck. t.* 30. *f.* 1. Nireus.

Habitat in *Indiis*.

Corpus secundæ magnitudinis, nigrum, punctis albis adspersum.

Alæ *Primores supra* nigræ, subfalcatæ.

Fascia a medio marginis antici, viridi-inaurata ducit ad angulum ani alarum posticarum.

Punctum viridi-inauratum intra apicem alæ.

- *Subtus* nigro-fuscæ.

- *Posticæ supra* concolores primoribus.

Fascia primorum viridi-inaurata continuata.

Puncta aliquot viridi-inaurata intra dentes.

- *Subtus* nigro-fuscæ.

Puncta alba in alis 12, intra dentes in seriem digesta. in aliis puncta bina hinc inde inter dentes.

Stelenes. 37. PAPILIO E. A. alis dentatis ſupra fuſcis: faſcia vireſcente obtuſa interrupta. *Syſt. Nat.* 465. *n.* 39. *Clerck. t.* 35. *f.* 2.

Pet. gaz. 20. *t.* 13. *f.* 1. Papilio jamaicenſis e fuſco luteſcente, ſubtus vireſcens croceo mixtus.

Merian. ſurin. 2. *t.* 2.

Sloan. jam. 2. *p.* 217. *t.* 239. *f.* 9, 10.

Habitat in *America* calidiore.

Corpus ſecundæ magnitudinis.

Alæ *Primores* obſolete falcatæ.

- *Supra* Faſcia vireſcens, lata, ab angulo ani poſticarum extenſa verſus apicem anticarum, deſinens in medio alæ prioris, quam continuant Maculæ 3. f. 4, latiores, disjunctæ.

  Maculæ vireſcentes, rotundatæ, intra marginem exteriorem: Majores in poſticis, obſoletiores in anticis.

- *Subtus* alæ omnes vireſcentes, Anticæ Rivulis pallidis exaratæ.

  Lineæ nigræ, transverſæ, parallelæ, ad medium antici marginis.

  Poſticæ in medio faſcia albida, marginibus luteis; poſteriori margine dentatæ.

38. PAPILIO E. A. alis angulatis fuſcis: poſticis ocellis duobus cæruleis pupilla nigra, punctisque tribus albis. *Syſt. Nat.* 465. *n.* 40. *Clerck. t.* 30. *f.* 3. Philoctetes.

Habitat in *Indiis*.

Corpus ſecundæ magnitudinis.

Antennæ ferrugineæ, filiformes, vix manifeſte extrorſum craſſiores.

Alæ *Primores ſupra* fuſcæ.
Punctum 1, parvum, verſus apices.

Poſticæ ſupra fuſcæ.

Puncta 3, alba, intra marginem exteriorem.
Margo poſticus niger.
Maculæ ocellares 2 violaceæ, intra marginem poſticum; quorum 2 exteriores pupilla atra; tertia ſ. interior linearis, transverſa, cæca.

Primores ſubtus griſeæ.

Faſcia linearis, alba, transverſa in medio.
Linea transverſa, atra, verſus baſin.
Linea fuſca, intermedia, anguſtiſſima.
Punctum album intra apicem.

Poſticæ ſubtus diviſæ transverſim in 3 regiones:

α. Interior punctis 3 nigris notata,
β. Intermedia fuſca.
γ. poſterior Punctis 3 albis, intra marginem exteriorem.

Maculæ 2, rotundæ intra marginem poſticum.

3.

3. HELICONII.

Piera. 39. PAPILIO H. alis oblongis integerrimis hyalinis diaphanis, poſticis ocellis binis. *Syſt. Nat.* 465. *n.* 43. *Clerck. t.* 36. *f.* 4.

Habitat in *Indiis*.

Corpus quartæ magnitudinis ſ. P. urticarii.

Antennæ anguſtiſſimæ, clavatæ, flaveſcentes.

Pedes quatuor, ungviculati, duo mutici.

Alæ *Primores* concolores, hyalinæ, nudæ, pellucidæ venis obſcurioribus.

- *Poſticæ* concolores; hyalinæ venis obſcurioribus.
  Diſcus parum flaveſcens.
  Apices acutiuſculi, flaveſcentes.
  Ocelli 2, nigri, iride rufa, pupilla alba, verſus apicem alæ, ad ſingulum marginem ſinguli.

40. PAPILIO H. alis integerrimis rotundatis concoloribus nigro-ſtriatis: faſcia alba; poſticis punctis decem atris. *Syſt. Nat.* 487. *n.* 180. *Clerck. t.* 31. *f.* 4. Eurytæ.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis, fuſcum ſ. nigrum.

Caput & Thorax punctis albis adſperſa.

Abdomen ſubferrugineum punctis nigris.

Alæ *Primores* concolores, fuſcæ.
Faſcia alba, transverſa, brevis, in medio alæ.
Macula alba, ſtriata, ad marginem poſteriorem.

Poſticæ concolores, fuſcæ: ſtriis nigris, longitudinalibus; baſi ferrugineæ.
Diſcus verſus baſin albus: Punctis 9 ſ. 10 atris.

41.

Terpsichore. 41. PAPILIO H. alis oblongis integerrimis flavis; posticis saturatioribus: maculis nigris sparsis. *Syst. Nat.* 466. *n.* 45.

Pet gaz. t. 40. *f.* 4. Papilio maderaspatanus croceus, nigris maculis adspersus.

Habitat in *Asia.*

Corpus magnitudine admodum variat, vix P. Urticarii.

Alæ *supra* omnes luteæ.

Apices fusci lunula in medio.

Margo latus niger cum catena punctorum flavorum.

a *Subtus* omnes concolores; at Discus (nunc in utrisque alis, nunc in posticis tantum) Punctis atris plurimis confertis adspersus.

42.

42. PAPILIO H. alis oblongis integerrimis luteis: primoribus ſtriis tribus; poſticis faſciis tribus nigris. *Syſt. Nat.* 466. *n.* 46. *Clerck. t.* 41. *f.* 4. Calliope.

Habitat in *Indiis*.

Corpus quartæ magnitudinis, habitu P. Apollinis.

Pectus albo-maculatum.

Alæ *Primores* oblongæ, luteæ, concolores.
Apices nigri Punctis 4 albis.
Striæ 3, nigræ, longitudinales; ad baſin Maculæ 3, nigræ, rotundatæ, transverſim in medio diſci diſpoſitæ.

Poſticæ integerrimæ, nigræ, concolores.
Diſcus luteus in quo
Faſcia ex Maculis 6. f. 7, nigris, parallelis.
Margo poſticus Punctis albis crenatus.

Polymnia 43. PAPILIO H. alis oblongis integerrimis luteis; primoribus fascia flava; posticis fasciis tribus nigris. *Syst. Nat.* 10. *p.* 466. *n.* 47.

Pet. gaz. t. 12. *f.* 8. Papilio surinamensis ex aurantio et nigro mixtus.

Roes. ins. 4. *p.* 43. *t.* 5. *f.* 2.

Edw. av. 175. *t.* 175.

Habitat in *America* meridionali.

Corpus quartæ magnitudinis, habitu P. Apollinis.

Antennæ flavæ distingvunt speciem, valde angustis clavis, ut in affinibus.

Alæ *Primores* utrinque basi ferrugineo-luteæ, medio fulvæ, apice nigræ.

Maculæ nigræ, aliquot, inæquales, in disco.

44. PAPILIO H. alis oblongis integerrimis fuſcefcentibus diſco albis: poſticis ocellis utrinque binis. *Syſt. Nat.* 10. *p.* 446. *n.* 48. Urania.

Habitat in *Indiis*.

Corpus ſecundæ magnitudinis.

Alæ *Primores utrinque* fuſcæ.
Diſcus albidus, immaculatus.

Poſticæ utrinque fuſcæ, diſco albido.
Ocelli 2, grandes, flavi, iride nigro-cæruleſcente, cinct. nigredine, pupilla alba minima; horum alter ad marginem anteriorem, alter vero fere in diſci medio.

Euterpe. 45. PAPILIO H. alis oblongis integerrimis nigris albo-punctatis fascia fulva. *Syst. Nat.* 466. *n.* 49.

Habitat in *America.*

Corpus tertiæ magnitudinis.

Antennæ nigræ.

Alæ *omnes utrinque* concolores, nigræ.

Puncta alba, oblonga, sparsa.

Fascia transversa, saturate lutea, versus marginem exteriorem.

Basis alarum subtus lutescit.

46.

46. PAPILIO H. alis oblongis integerrimis fuſcis; primoribus utrinque faſciis duabus flavis. *Syſt. Nat.* 10. *p.* 466. *n.* 50. Ricini.

Merian. ſurin. 30. *t.* 30.

Ehret. pict. t. 1.

Ræſ. inſ. 4. *p.* 42 *t.* 5. *f.* 1.

Habitat in *America* meridionali.

Mas? ALÆ *Primores utrinque* concolores, nigræ, ſubtus pallidiores.

Faſcia flava, in medio, transverſa.
Faſcia flava, anguſtior, intra apicem.
Linea flava & rubra, longitudinalis, ad baſin.

- *Poſticæ ſupra* nigræ, baſi area rubra.

- *Subtus* fuſcæ margine antico flavo.
Puncta 4 coccinea ad baſin, & 1 ad angulum ani.

Femina? ALÆ *Primores* concolores, nigræ, ſupra atræ.

Faſcia flava, brevis, in medio transverſa.
Faſcia flava, arcuata, interrupta, transverſa, verſus apicem.
Baſis ſanguinea.

- *Poſticæ* concolores, nigræ, ſupra atræ.
Lineæ 4 ſ. 6, ſanguineæ, longitudinales, baſi coadunatæ, ad marginem poſticum extenſæ.

Pfidii. 47. PAPILIO H. alis oblongis integerrimis fuſcis: primoribus faſciis tribus; poſticisque duabus hyalinis. *Syſt. Nat.* 10. *p.* 466. *n.* 51.

Merian. ſurin. 19. *t.* 19.

Pet. gaz. t. 40. *f.* 3. Phalæna benghalenſis fuſco & diaphano mixta.

Edw. av. t. 80.

Rœſel inſ. 4. *p.* 25. *t.* 2. *f.* 3.

Habitat in utraque *India*.

CORPUS quartæ magnitudinis, habitu P. Apollinis.

ANTENNAS non vidi, hinc de Genere hæſito.

ALÆ *Primores* oblongæ, fuſcæ, concolores.

Maculæ 3, hyalinæ, pellucidæ, maximæ, ovatæ, quaſi totidem faſciæ.

Poſticæ breves, fuſcæ.

Maculæ 2, ſubrotundæ, maximæ, hyalinæ, pellucidæ.

Puncta aliquot alba, ſubtus ad baſin.

Margo punctis albis.

48. PAPILIO H. alis oblongis integerrimis fuſcis: primoribus albo maculatis; poſticis faſcia alba. *Syſt. Nat.* 447. *n.* 52. Clio.

Merian. ſurin. 35. *t.* 35.

Habitat in *America*.

Corpus magnitudine Argi majoris.

Alæ *Primores ſupra* fuſco-nebuloſæ.
Maculæ 4, albæ, alternæ.

- *Subtus* omnes fuſcæ.
Maculæ 4, albæ, rotundatæ, alternæ; & unica linearis, longitudinalis, ad baſin alæ.

- *Poſticæ ſupra* fuſcæ.
Faſcia alba, transverſa, quæ non attingit marginem exteriorem.

- *Subtus* Faſcia alba, lata, transverſa, margine ante-riore & poſteriore fuſca, dein poſterius ferrugi-nea.

Thalia. 49. PAPILIO H. alis oblongis integerrimis fuſcis: primoribus flavo-maculatis; poſticis luteo ſtriatis. *Syſt. Nat.* 467. *n.* 53. *Clerck. t.* 43. *f.* 2.

β. Papilio *Ixilion* alis integerrimis ſubioncoloribus fuſcis: primoribus luteo maculatis; poſticis luteo ſtriatis. *Syſt. Nat.* 488. *n.* 191.

Habitat in *Indiis.*

Corpus magnitudine P. Cardamines.

Alæ *Primores* ſubfuſcæ, concolores.

Faſcia flava ex Maculis 4, oblongis.

Maculæ 2, lineares, flavæ, longitudinales in baſi.

Maculæ flavæ, parvæ, rotundatæ, in diſco ante ſingulam lineam.

Poſticæ fuſcæ.

Striæ ramoſæ, flavæ, parallelæ, a pagina ſuperiore deſinunt ante marginem.

50. PAPILIO H. alis oblongis integerrimis atris: primoribus flavo maculatis basi rubris; posticis rubro-striatis. *Syst. Nat.* 467. *n.* 54. *Clerck. t.* 40. *f.* 1. Erato.

Habitat in *Indiis*.

Corpus tertiæ s. quartæ magnitudinis, figura P. Apollinis, nigricans.

Antennæ nigræ.

Alæ omnes concolores, atræ, oblongæ, obtusæ, integerrimæ.

- *Primores* basi rubræ; disco maculis flavis, circiter 10, parvis, ovatis, sparsis.

- *Posticæ* striatæ longitudinaliter striis 7, rubris, basi coëuntibus.

Melpomene. 51. PAPILIO H. alis oblongis integerrimis nigris; basi subtus rubris: primoribus utrinque fascia rubra. *Syst. Nat.* 10. *p.* 467. *n.* 55.

Edw. av. t. 38.

Sloan. jam. 2. *p.* 219. *t.* 239. *f.* 25. 26.

Pet. gaz. 7. *t.* 4. *f.* 2. Papilio mexicanus nigrescens, linea lutescente, area miniacea notabili.

Habitat in *America*.

Corpus tertiæ magnitudinis, nigrum.

Thorax punctis flavis & albis.

Abdomen subtus flavum.

Femora linea alba.

Antennæ nigræ, clavatæ.

- *Primores* concolores, nigræ, oblongæ.
  Fascia rubra, obsoleta, transversa, lata, quæ in anticis maculæ, versus posteriora acuta.
  Puncta duo albida, oblongum, adjacens fasciæ.

- *Posticæ* fuscæ s. nigræ, obovatæ, integerrimæ.
  Puncta 4. s. 6, coccinea, cuneata, ad basin subtus.
  Margo anticus basi flavescens.

52.

52. PAPILIO H. alis integerrimis flavis: primoribus ſupra maculis tribus nigris; poſticis ſubtus linea cineraſcente. *Syſt. Nat.* 487. *n.* 179. Eribotes.

Habitat in *Indiis*.

Corpus quartæ magnitudinis.

Alæ *Primores ſupra* fuſcæ.

Maculæ tres, flavæ, inæquales, quarum duæ a margine anteriore oblique verſus diſcum locatæ; tertia ad medium marginis tenuioris.

- - *Subtus* flavæ maculis ut ſupra.

- *Poſticæ ſupra* flavæ.

Margo poſticus verſus angulum exteriorem fuſcus.

- *Subtus* flavæ.

Faſcia linearis, transverſa, obſolete cineraſcens.

Horta. 53. PAPILIO H. alis oblongis integerrimis rubris: primoribus apice hyalinis nigris; posticis subtus albidis nigro punctatis.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus quartæ magnitudinis, nigrum.

Abdomen subtus & lateribus rubrum.

Thorax albis punctis. *Palpi* villosi, albidi, obtusiusculi.

Pedes antici mutici.

Alæ *Primores* oblongæ, concolores, rubræ, adspersæ litura nigra, in medio ad marginem exteriorem & duobus tribusque punctis nigris, obsoletioribus, sparsis.

Apices alarum ad tertiam partem totius hyalinæ s. nudæ, fuscæ striis nigris.

- *Posticæ* obovatæ, integerrimæ.

- *supra* rubræ punctis pluribus, nigris, sparsis.

Margo posticus niger, antrorsum dentatus punctis interjectis fulvis.

- *Subtus* albidæ, adspersæ punctis majusculis, 8-16, nigris.

Margo posticus niger, interruptus punctis octo, subrotundis, albis; ante hunc marginem linea rubra obsoletior.

54.

54. PAPILIO H. alis rotundatis oblongis concoloribus luteo nigroque variegatis: subtus punctis octo albis submarginalibus. *Syst. Nat.* 487. *n.* 182. Mopsa.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Antennæ albæ.

Pedes sex anticis, muticis.

Alæ *Primores* concolores, oblongæ, versus basin testaceo-luteæ, medio flavæ, ad apicem nigræ.

Discus Maculis quinque, fuscis adspersus.

Margo posticus linea nigra longitudinali.

- *Posticæ* concolores, testaceo-luteæ, cinctæ margine lato, nigro, antice æquali, postice antrorsum serrato.

Fascia transversa, nigra, utrinque serrata, in medio alæ.

Margo exterior in omnibus ac singulis alis pingitur Punctis octo, albis.

4. DANAI CANDIDI.

Anacardii.

55. PAPILIO D. C. alis integerrimis angulatis virescenti-albidis apice fuscis; posticis ocellis duobus. *Syst. Nat.* 467. *n.* 56. *Clerck. t.* 28. *f.* 3.

Merian. Surin. 16. *t.* 16.

Habitat in *America.*

CORPUS magnitudine P. Antiopæ.

ALÆ *Primores supra* albo-virescentes, falcatæ, obtusæ.

Apices fusci Macula una alterave alba, rotundata.
Macula fusca, in medio ad marginem anticum.
Ocelli duo, cæci, ad marginem posticum.

Subtus albidæ.

Ocelli 2 flava medio nigro.

Posticæ supra albo-virescentes, ut primores.
Angulus posterior valde acuminatus.
Ocellus incarnatus, iride pupillaque nigris, ad angulum ani.

Subtus albidæ, ut primores.
Ocelli 2, parvi, flavi, pupilla incarnata.

56.

56. PAPILIO D. C. alis rotundatis integerri- Monuſte.
mis albis margine fuſco.

Habitat in Exteris terris.

Corpus tertiæ magnitudinis, facie P. Braſſicæ.

Caput & Thorax nigricantia.

Antennæ nigræ.

Abdomen albidum, apice nigrum.

Pedes 6, pallidi.

Alæ *ſupra Primores* albæ.
Margo fuſcus, inprimis apicibus & margine anteriore exterioreque, non vero poſtico.

- *Poſticæ* albæ.
Margo exterior tantum denticulato-fuſcus.

- *Subtus* omnes concolores, ſed loco fuſci coloris tantum cineraicentes ad marginem.

Itea. 57. PAPILIO D. C. alis rotundatis integerrimis albis, venis maculisque nigris: primoribus nigro margine albo-punctato. *Amœn. acad. 6. p. 405. n. 63. Clerck. rar. t. 38. f. 1.*

Habitat in *India* orientali.

Corpus primæ magnitudinis, adeoque Danais omnibus majus, cinereum, dorso fusco, Punctis nigris quibusdam longitudinalibus.

Cauda tentaculis 2, articulatis.

Pedes nigricantes 6, quorum anteriores duo minores mutici.

Alæ omnes utrinque albæ venis latis nigris: nigredine albedinem superante.

- *Primores utrinque* Maculis 4. f. 5, majusculis, confertis, & fere cohærentibus, in medio adspersæ.

- *Posticæ* Puncto ovali nigro utrinque versus basin notatæ.

58.

58. PAPILIO D. C. alis integerrimis rotundatis flavescentibus: primoribus apice (medio fulvo) nigris; posticis subtus albis. *Syst. Nat.* 469. *n.* 64. *Clerck. t.* 50. *f.* 5. Euippe.

Pet. gaz. t. 9. *f.* 10. Papilio albus angolensis apicibus miniaceis.

Habitat in *Angola*.

Corpus quartæ magnitudinis, facie P. Cardamines.

Antennæ nigræ, annulis & apice nigris.

Alæ *Primores supra* albæ.

Nigredo versus apicem dimidiam alam occupat.

Discus nigredinis maxima ex parte fulvus s. coccineus.

- *Subtus* similes paginæ superiori, sed luteæ loco nigredinis.

- *Posticæ supra* albæ.

Margo rotundatus, vix dentatus, fusco quasi crenatus.

- *Subtus* concolores, sed absque margine fusco.

Punctum minimum, fuscum, subtus in centro cujusvis alæ, at in posticis simul flavum.

Differt a Pap. Cardamines

Nigredine distingvente Maculam fulvam ab albedine; nec color ruber infra nigredinem ut Cardamines.

Alis posticis subtus non nebulosis, ut P. Cardamines.

59.

Glaucippe. 59. PAPILIO D. C. alis integerrimis rotundatis albis: primoribus apice (medio fulvo) nigris; poſticis ſubtus cinereis. *Syſt. Nat.* 469. *n.* 65. *Clerck. t.* 35. *f.* 1.

Edw. av. 128. *t.* 128.

Habitat in *China*.

Corpus tertiæ magnitudinis.

Caput griſeum: Oculi teſtacei.

Thorax hirſutus lana albida.

Pedes ſex, pallidi.

Alæ *Primores ſupra* albæ, margine antico fuſco. Verſus apicem nigræ macula magna fulviſſima, nervis nigris in 5 ſ. 6 partes diviſa.

Subtus albæ, verſus apicem cinereo-nebuloſæ, medio pallide flaveſcentes.

Poſticæ ſupra albæ, margine repandæ.

Subtus cinereo-nebuloſæ linea longitudinali magis fuſca.

Hic duplo major eſt Pap. Glaucippe; *& alæ poſticæ ſubtus in hoc cinereæ, in illo vero albæ.*

SEXUS alter Alis poſticis margine poſtico maculis 5, fuſcis, concatenatis & ante hunc maculis 5, nigris, ſubrotundis.

60.

60. PAPILIO D. C. alis ſubintegerrimis rotundatis flavis: primoribus apice (medio fulvo) nigris; ſubtus nebuloſo maculatis. Pyrene.

Habitat in *China*.

Corpus magnitudine P. Braſſicæ.

Alæ *Primores ſupra* a medio ad baſin flavæ; a medio ad apicem atræ: Diſcus fulvus, in medio areæ atræ, diviſus nervis nigris in areolas quinque ſ. ſex.

Subtus flavæ, atomis griſeis nebuloſæ & maculis nonnullis fuſcis (ſæpius quatuor) adſperſæ.

Poſticæ ſupra flavæ.
Margo exterior niger.

Subtus flavæ, nebuloſæ uti primores & adſperſæ Maculis ſex pluribusque fuſcis, centro albido notatis.

Scylla. 61. PAPILIO D. C. alis ſubintegerrimis rotundatis fulvis: primoribus albis apice nigro; ſubtus omnibus nebuloſis.

Habitat in *Java.*

Corpus magnitudine P. Braſſicæ.

Alæ *Primores ſupra* albæ, margine exteriore late nigro.

Subtus ſaturate luteæ.

Punctum centrale ſesqui alterum, griſeum, ſubocellatum.

Limbus Lineola repanda, obſoleta, fuſceſcente.

Poſticæ ſupra fulvæ.

Margo exterior Punctis quinque, nigris.

Subtus primores concolores.

Margo poſticus Punctis nigris, ſeptem, minutis.

62.

62. PAPILIO D. C. alis albis: primoribus macula apiceque albo punctato nigris, posticis subtus cinereo-venosis. Helice.

Habitat ad *Cap. b. Spei.* Tulbagh.

Corpus fere tertiæ magnitudinis, album.

Pedes sex, perfecti, albi.

Alæ *Primores supra* albæ.

Macula in medio, ad marginem exteriorem, nigra.

Apex niger punctis s. Maculis 4, albis.

Subtus concolores, sed apex magis cinerascens.

Posticæ supra albæ, immaculatæ.
Margo posticus Maculis 4, nigris, acutis.

Subtus albæ, venis reticulatæ latis, cinerascentibus, desinentibus posterius in ramos 6 s. 7, lanceolatos.

Encedon. 63. PAPILIO D. C. alis rotundatis concoloribus flavis: primoribus extrorsum (fascia alba) nigris; posticis punctis XIX nigris. *Syst. Nat.* 488. *n.* 188.

Habitat in *Indiis*.

Corpus quartæ magnitudinis, fuscum.

Thorax punctis albis.

Abdomen lateribus flavum.

Antennæ nigræ. *Palpi* barbati.

Pedes nigri: anticis muticis.

Alæ *Primores* concolores, flavæ.
Apex late niger, in medio fascia alba, obliqua.
Discus luteus Punctis tribus, nigris, oblongiusculis.

Posticæ concolores, flavæ, margine fusco.
Puncta disci nigra, novendecim, parva, subrotunda, sparsa: horum tria ipsam basin occupant.
Nullus margo punctatus cingit alam posticam.

64

64. PAPILIO D. C. alis integerrimis rotundatis albidis: supra puncto apiceque nigris, subtus griseſcentibus puncto fulvo. *Syst. Nat.* 10. *p.* 469. *n.* 66. Pyrante.

Habitat in *Asia.*

Corpus magnitudine & facie P. Cardamines.

Alæ *supra* omnes albidæ,
Basi cineraſcentes,
Apice fuſceſcentes cum luteo.

- *Subtus* concolores, sed pallidiores.
Punctum nigricans supra, subtus fulvum in centro cujusvis alæ.

Erfalte. 65. PAPIPIO D. C. alis integerrimis rotundatis albis; ſtriis marginalibus nigris: primoribus antice baſi flaveſcentibus. *Syſt. Nat.* 469. *n.* 67. *Clerck. t.* 23. *f.* 2.

Habitat in *Indiis*.

Corpus magnitudine P. Argi.

Antennæ nigræ, apice pallidæ.

Alæ omnes albæ.

Margo extimus tenuiſſimus niger.

Striæ a margine ductæ breves nigricantes.

Baſis alarum primorum antice flaveſcens.

86.

66. PAPILIO D. C. alis integerrimis rotundatis albis; poſticis ſubtus venis nigris maculisque ſanguineis. *Syſt. Nat.* 469. *n.* 68. *Clerck. t.* 38. *f.* 2, 3. Hyperate.

Habitat in *Indiis.*

Corpus magnitudine & affinitate P. Braſſicæ.

Alæ *ſupra* omnes albidæ margine fuſco.

Apex Primorum fuſcus Maculis 4. ſ. 5, albis, oblongis.

Flaveſcunt alæ verſus corpus.

- *Subtus* omnes albæ venis nigris craſſis.

- *Poſticæ* Maculis 7, ſanguineis, ovatis, approximatis, conſtituentibus faſciam arcuatam intra marginem poſticum.

Varietas an Femina?

Alæ ſubtus fuſcæ, verſus corpus flavæ, *venis* minus manifeſte nigris; *Maculis* ſanguineis etiam in diſco ſecundariarum.

Trite. 67. PAPILIO D. C. alis integerrimis flavis: primoribus supra margine nigris, singulis subtus linea transveria ferruginea. *Syst. Nat.* 469. *n.* 70.

Habitat in *Indiis*.

Corpus magnitudine P. Pteridis.

Alæ *supra* omnes flaviſſimæ, immaculatæ, Apices primorum margine nigri.

- *Subtus* omnes flaveſcentes.
Linea ferruginea transverſa.

In altero, *Sexu* forte, ſub alis primoribus Macula ferruginea; ſub ſecundariis puncta 2 argentea.

68. PAPILIO D. C. alis integerrimis rotundatis flavis extimo nigris: ſingulis ſubtus punctis pallidis numeroſiſſimis. *Syſt. Nat.* 470. *n.* 74. Hecabe.

Pet. gaz. t. 28. *f.* 9. Papilio Luzonicus luteus marginibus atris.

Edw. av. t. 253. *f.* 2.

Habitat in *China.*

Corpus magnitudine P. Cardamines, totum flavum.

Alæ *ſupra* omnes flavæ,

Primores apice & margine exteriore nigræ.

Poſticæ margine exteriore fuſco.

Subtus omnes maculatæ, flavæ, absque nigredine; adperſæ Punctis pallidis, numeroſis, inæqualibus

Acaſte. 69. PAPILIO D. C. alis rotundatis albis: apicibus maculisque quinque transverſis fuſcis; ſubtus flaveſcentibus. *Syſt. Nat.* 487. *n.* 186.

Habitat in *Indiis.*

Corpus magnitudine et facie P. Braſſicæ.

Antennæ nigræ annulis albis.

Alæ *Primores ſupra* albæ, verſus apicem nigræ.

Maculæ quinque, nigræ, obſoletæ, ovatæ, transverſim poſitæ.

Macula fuſca, magna, a latere anteriore verſus baſin.

- - *Subtus* pallide albæ, baſin verſus flavæ.

Faſcia fuſca, obſoleta, transverſa.

- *Poſticæ ſupra* albæ, verſus marginem poſticum nigricantes.

- - *Subtus* flaveſcentes.

5.

5. DANAI FESTIVI.

70. PAPILIO D. F. alis integerrimis nigris albido punctatis: primoribus ſupra cæruleſcentibus; poſticis punctorum alborum linea. *Syſt. Nat.* 470. *n.* 75. Midamus.

Act. Stock. 1748. *p.* 209. *t.* 6. *f.* 1. 2.

Ehret. pict. t. 3 & 11.

Habitat in *China*.

CORPUS tertiæ magnitudinis, nigrum.

ANTENNÆ nigræ.

THORAX albo punctatus.

ALÆ *Primores ſupra* atræ, cæruleſcentes, Punctis plurimis albis ſparſis; verſus baſin vero nigræ immaculatæ.

- - *Subtus* fuſcæ punctis lacteis ſparſis.

- *Poſticæ ſupra* nigræ absque punctis; extrorſum atræ; verſus baſin ſtigmatibus duobus albis.

- - *Subtus* fuſcæ punctis lacteis, ſparſis, minimis vixque conſpicuis.

Cepheus. 71. PAPILIO D. F. alis rotundatis fulvis: primoribus extimo nigris; poſticis punctis XVII pallidis. *Syſt. Nat.* 487. *n.* 183. *Clerck. t.* 43. *f.* 4.

Habitat in *Indiis.*

Corpus tertiæ ſ. quartæ magnitudinis, nigrum.

Abdomen ſubtus rufum, imprimis verſus poſteriora.

Antennæ nigræ. *Palpi* pallidi, barbati.

Pedes nigri: anticis muticis.

Alæ *Primores* concolores, fulvæ: extima medietate nigra.

Lunula nigra, in medio alæ.

Poſticæ ſupra fulvæ.

Puncta nigra, XVII, inæqualiter ſparſa.

Margo integerrimus, niger, introrſum quaſi dentatus.

Subtus pallide flavæ.

Puncta nigra, XVII, ſubrotunda, ſparſa.

Margo niger, introrſum quaſi ſerratus.

Linea fulva intra ſerraturam nigri marginis, unde oriuntur puncta 7 ſ. 8, pallida.

MAS minor eſt.

Macula, loco lunulæ primoris, fuſca, latior, obliqua.

Puncta in alis Poſticis minora.

Margo Poſticarum faſcia lineari fuſca, intra quam Puncta 7, pallida, absque rubedine.

72.

72. PAPILIO D. F. alis integerrimis nigris: primoribus fascia alba; posticis macula baseos communi alba. *Syst. Nat.* 470. *n.* 76. *Clerck. t.* 32. *f.* 2. Niavius.

Habitat in *Indiis.*

Corpus magnitudine P. Atalantæ, nigrum.

Thorax albo maculatus.

Alæ *Primores utrinque* nigræ.
Fascia transversa alba extra medium.
Puncta duo alba ad apicem; 2 ad marginem anteriorem; 2 ad marginem posteriorem.
Macula alba ad marginem posticum versus basin, quæ coit cum Macula alæ secundariæ.

Posticæ supra nigræ.
Fascia alba lata ad basin quæ coit cum alba alæ primoris.

Subtus cæruleſcentes, venis striatæ; Basis alba.

73.

Enceladus. 73. PAPILIO D. F. alis integerrimis fuscis: punctis marginalibus disci octo albis. *Syst. Nat.* 470. *n.* 77.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis, nigrum albo punctatum.

Alæ omnes utrinque fuscæ.

Margo exterior punctis 12 circiter albis.

Puncta circiter 7 alba, inæqualia, dispersa per discum absque ordine.

74.

74. PAPILIO D. F. alis integerrimis ſupra nigris faſcia cyanea; ſubtus viridibus faſcia albida. *Syſt. Nat.* 470. *n.* 78. *Clerck.* *t.* 31. *f.* 2, 3. Obrinus.

Habitat in *Indiis.*

Corpus quartæ magnitudinis.

Alæ *Primores ſupra* atræ.

Faſcia cyanea ſ. cæruleo-viridis, transverſa, quæ non extenditur ad margines alæ.

- - *Subtus* vireſcentes.

Faſcia cæruleo-albida in medio.

Pone faſciam fuſceſcit ala & ſtriis quibuſdam transverſis notatur.

- *Poſticæ ſupra* atræ.

In quibusdam Faſcia fulva lata. an Mas?

- - *Subtus* vireſcentes.

Lineæ transverſæ, griſeæ, tres.

Puncta 2, fuſca.

75.

Æropus. 75. PAPILIO D. F. alis integerrimis fuſcis faſcia lutea: primoribus ſubtus baſi ocello unico. *Syſt. Nat.* 475. *n.* 105. *Clerck. t.* 39. *f.* 1.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Alæ *ſupra* omnes fuſco-nigricantes.

Faſcia linearis, ferrugineo-lutea, ab angulo ani poſticarum ad medium marginem primorum, quæ antice disrupta.

- *Subtus* omnes teſtaceæ, parum variegatæ.

- *Primores* baſi ocello nigro, Iride cæruleſcente. Punctum in medio alæ glaucum.

- *Poſticæ* intra marginem poſteriorem punctis 7, nigris.

76. PAPILIO D. F. alis integerrimis fuſcis area rufa: primoribus ocello bipupillato; poſticis ſubtus ſeptem punctatis. Hyperbius.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus 5:tæ magnitudinis ſ. P. Argo paulo majus, nigrum.

Antennæ clavatæ, ſubtus albidæ.

Pedes quatuor perfecti, cinerei.

Alæ *Primores* concolores, fuſcæ diſco ſ. area oblongâ rufa.

Ocellus orbiculatus, verſus apicem in margine areæ, niger punctis duobus albis.

-- *Poſticæ ſupra* ſimillimæ primoribus, ſed absque ocello.

-- *Subtus* fuſcæ cum atomis quibusdam albis verſus poſteriora.

Puncta ſeptem, alba, vix conſpicua, in arcum digeſta per diſcum.

Pinthous. 77. PAPILIO D. F. alis rotundatis integerrimis concoloribus: primoribus fuſcis: maculis tribus flavis; poſticis dimidiato albis. *Syſt. Nat.* 488. *n.* 189.

Habitat in *Aſia.*

Corpus quartæ magnitudinis, fuſcum.

Antennæ nigricantes.

Pedes ſex perfecti, pallidi.

Alæ *Primores* fuſcæ Maculis tribus, flavis:

Prima parva ad apicem.

Secunda magna, transverſalis, obliqua, in medio.

Tertia oblonga, ad batin.

Poſticæ integerrimæ, dimidiato-albæ fuſcæque.

Pars antica alba; poſtica nigra interjacente ſpatio albo-flaveſcente.

78. PAPILIO D. F. alis rotundatis fuſcis: primoribus albo maculatis baſi ſanguineis; poſticis area alba. *Amœn. acad.* 6. *p.* 407. *n.* 70. *Clerck. t.* 45. *f.* 1. Talaus.

Habitat in *Indiis*.

Magnitudo & facies P. Nelei.

Alæ integerrimæ ſubconcolores, fuſcæ.

Primores ſupra fuſcæ Maculis parvis, transverſim fere digeſtis, albis, ſæpe concurrentibus fere in faſcias. Ad baſin Macula oblonga ſanguinea.

Poſticæ ſupra fuſcæ, in medio Macula alba ovata majuſcula.

Subtus primores concolores, ſed absque Macula ſanguinea.

Poſticæ concolores, ſed Macula magis angulata & major ipſam baſin attingit.

Neleus. 79. PAPILIO D. F. alis rotundatis concoloribus nigris: punctis decem albis; posticis disco toto albo. *Syst. Nat.* 488. *n.* 187. *Clerck. t.* 45. *f.* 2.

Habitat - - -

Corpus quartæ magnitudinis, nigricans.

Abdomen album.

Antennæ - - - -

Pedes albi latere exteriore nigro: anticis muticis.

Alæ *Primores* concolores, nigræ.
Puncta XI, alba, sparsa, quorum quæ in medio majora; margini, & imprimis apici propiora sunt minora.

-- *Posticæ* concolores, sed disco albo, ita ut margo undique niger, excepto margine interiore.

-- *Subtus* punctum obsoletum, in disco albo ad marginem anteriorem.

80.

80. PAPILIO D. F. alis ſubintegerrimis: ſupra fuſcis, ſubtus flaveſcentibus: faſciis albis; poſticis punctis ſeptem albis. *Syſt. Nat.* 471. *n.* 79. Pierius.

Habitat in *Indiis.*

Corpus magnitudine P. Atalantæ.

Alæ *ſupra* omnes fuſcæ.

Faſcia alba, arcuata, conſtans Maculis ovalibus, parallelis, approximatis, a lateribus abdominis per ambas alas inflexa ducit ad apicem anteriorem primorum.

Linea cum Punctis 3 albis longitudinalibus ad baſin anticarum extenſa.

Puncta 6. ſ. 7. alba intra marginem exteriorem primorum.

-- *Poſticæ ſupra*: Puncta 7 alba (cum Puncto nigro ad ſingulum album) quæ digeſta in arcum intra angulum exteriorem.

-- *Subtus* hæc puncta Faſciam albam cum totidem punctis conſtituunt.

Plexippus. 81. PAPILIO D. F. alis integerrimis fulvis: venis nigris dilatatis, margine nigro punctis albis. *Syst. Nat.* 471. *n.* 80.

Sloan. jam. 2. *p.* 214. *t.* 239. *f.* 5, 6.

Catesb. car. 2. *p.* 88. *t.* 88?

Pet. gaz. 552. *n.* 527.

Habitat in *America* septentrionali. P. Kalmeus e China.

CORPUS nigrum, lateribus & subtus albo punctatum, ut & capite & collo.

ANTENNÆ nigræ, capitatæ.

PEDES nigro cæruleſcentes.

ALÆ omnes fulvæ, rotundatæ, vix manifeſte dentatæ, paginis concoloribus.

Margo niger, punctis albis duplici ſerie digeſtis.

Venæ nigræ, latæ admodum, aream alarum percurrunt, qua nota a reliquis facillime diſtingvitur.

Alæ *Primores* apicibus late nigris, in qua parte, præter puncta alba, etiam Faſcia alba interrupta ex Maculis quinque.

-- *Subtus* omnes concolores ſed dilutius nigræ.

82.

82. PAPILIO D. F. alis integerrimis fulvis margine nigro punctis albis; posticis disco punctis nigris. *Syst. Nat.* 471. *n.* 81. Chrysippus.

Edw. av. 189. *t.* 189.

Raj. inf. 139. *n.* 1.

Schreber inf. 9. *f.* 11. 12. Papilio *Ægyptius* hexapus, alis integerrimis apicibus nigris albo maculatis.

Habitat in *Ægypto* unde tanquam singularis. D. Hasselquist.

Antecedenti (P. Plexippo) simillimus colore, habitu, omnibus; sed dimidio minor, magnitudine P. Urticarii, at venis nigris caret.

Antennæ nigræ, clavatæ.

Caput & Pectus nigra albis punctis copiosis.

Alæ *Primores* rotundatæ, testaceo-luteæ, apice fere ad medium nigræ; margo nigredinis albo-punctatus & in medio fascia nigra ex Maculis 5 albis, præter minores exteriores.

-- *Subtus* concolores, sed apice minus nigræ.

-- *Posticæ* rotundatæ, testaceo-luteæ, concolores, margine nigro cum punctis albis.

Maculæ aliquot nigræ parvæ in disco; similes subtus sed albo margine: harum corpori proximæ centro albo.

Miſippus. 83. PAPILIO D. F. alis ſubintegerrimis fulvis margine nigro alboque lineatis; poſticis macula nigra.

Habitat in *America*.

Simillimus P. Plexippo & Chryſippo, ut caute diſtinguendus.

Caput, Collum, Pectus punctis albis.

Alæ ſubconcolores, ferrugineo-lutcæ, cinctæ in peripheria nigro margine, quem dividunt lunulæ interruptæ, albæ, duplici triplicive ordine.

— *Primores* apice late nigræ, nigredine faſcia alba, e Maculis quatuor diviſa; extra hanc puncta ſ. Maculæ tres albæ.

Subtus ſimiles, ſed apice minus nigræ.

— *Poſticæ ſupra* habent Maculam unicam nigram ad marginem anteriorem.

— *Subtus* Maculæ 2 ſ. 3, quarum prima, verſus baſin, vix manifeſta.

84. PAPILIO D. F. alis integerrimis fuſcis: primoribus poſticarumque margine faſcia ferruginea; omnibus ſubtus ocellatis. *Syſt. Nat.* 471. *n.* 82. *Clerck, t.* 29. *f.* 3. Caſſiæ.

Merian. ſurin. 32. *t.* 32.

Muſ. petrop. 670. *n.* 88. Papilio tota nigra, faſcia ſaturate aurantii coloris per alas ad anum in angulum.

Habitat in *America* meridionali.

Corpus magnitudine, habitu, coloribus ita ſimile P. Sophoræ, ut difficile diſtingvatur, hinc eadem deſcriptio. At

Faſcia alarum poſticarum (non ducit per diſcum poſticarum arcuatim ad angulum ani, ſed obſoletis anticis) marginem ipſum exteriorem tangit, & definit verſus poſteriora.

Ocellus intra apicem alarum poſticarum, a pagina inferiore duplo major: pupilla atra; at a pagina ſuperiore Puncta duo alba.

Ocelli duplo majores ſ. evidentiores in pagina inferiore alarum poſticarum.

Mirum ſimiles adeo inter ſe Papiliones, Caſſiæ & Sophoræ, tam diverſis gaudere Larvis.

Sophoræ. 85. PAPILIO D. F. alis integerrimis fuſcis; faſcia ferruginea; ſubtus primoribus ocello unico, poſticis tribus. *Syſt. Nat.* 471. *n.* 83. *Clerck. t.* 35. *f.* 3.

Merian. ſurin. 35. *t.* 35. *f.* 1. 2.

Habitat in *America.*

Corpus ſecundæ magnitudinis, ſimillimum ſequenti.

Alæ *ſupra* omnes rotundatæ absque dentibus, fuſcæ.

Faſcia ferrugineo-lutea, æqualis, arcuata, ducta a medio marginis antici primorum ad angulum poſticum ani, antice bifida.

-- *Subtus* omnes griſeæ;

Primoribus Faſcia flaveſcens transverſa arcuata in medio.

Ocellus fuſcus parvus, verſus apicem.

Poſticæ immaculatæ, quibus:

Ocellus pallidus ad marginem anteriorem.

Ocellus pallidus in medio diſci, verſus poſteriora.

Ocelli veſtigium obſoletum ad angulum exteriorem.

86. PAPILIO D. F. alis integerrimis: ſupra fuſcis faſcia ferruginea; poſticis ſubtus ocellis duobus: altero lunari. *Syſt. Nat.* 472. *n.* 87. *Clerck. t.* 34. *f.* 1, 2. Xanthus.

Habitat in *Indiis*.

Corpus ſecundæ magnitudinis, griſeum, præcedenti ſimile.

Antennæ nigricantes.

Alæ *Primores ſupra* fuſcæ, ſubfalcatæ.

Faſcia ferruginea transverſalis arcuata.

- *Subtus* cinereo-nebuloſæ, verſus baſin undatæ.

Ocellus infra apicem exteriorem niger iride flava.

Maculæ ſ. Puncta duo alba intra apicem.

- *Poſticæ ſupra* fuſcæ margine exteriore ferrugineo.

- *Subtus* concolores primoribus.

Ocelli duo: Prior ad marginem anticum, major, pallidus, litera C lactea inſcriptus. Poſterior in medio alæ iride nigra.

Sexus alter, in medio alæ poſticæ a pagina ſuperiore, gerit Faſciculum coarctatum fere ſubulatum, truncatum, ex pilis longioribus compoſitum.

87.

Clytus. 87. PAPILIO D. F. alis integerrimis fuſcis: primoribus faſcia flava ocelloque ſubtriplicato, poſticis ocellis quinque.

Habitat ad *Cap. b. ſpei.* Tulbagh.

CORPUS tertiæ magnitudinis, nigrum.

PEDES quatuor perfecti.

ALÆ *Primores ſupra* ſubconcolores, fuſceſcentes.

Faſcia arcuata, flava, ſubinterrupta maculis.

Ocellus didymus, niger pupillis totidem cæruleis, cum tertio adnato poſtico ocello minutiſſimo, annulo flavo cinctus.

-- *Poſticæ ſupra* fuſcæ.

Ocelli ante marginem poſticum quinque, nigri, iride ferruginea, pupilla cæruleſcente; horum ultimus minor eſt.

-- *Subtus* fuſcæ, ſtrigis tribus atris undulatæ.

Ocelli quinque, ut ſupra, griſei annulo nigro cincti Pupillaque nigra centro cæruleſcente.

Ocelli duo, inæquales, connati, obſoletiores, paulo remoti a reliquis, ad marginem anteriorem.

88.

88. PAPILIO D. F. alis integerrimis fuſcis umbra rufeſcente: primoribus ocello didymo; poſticis ſupra ocellis tribus. Caſſus.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus tertiæ magnitudinis, nigrum.

Antennæ clavatæ.

Pedes quatuor perfecti.

Alæ *Primores* ſubconcolores, fuſcæ diſco obſolete rufeſcente.

Ocellus niger, didymus pupillis duabus, niveis, verſus apicem alæ utrinque.

-- *Subtus* lineola fuſca in medio & pallida ante marginem exteriorem.

-- *Poſticæ ſupra* fuſcæ.

Ocelli tres ante marginem poſticum, nigri, iride rubra, pupilla nivea minutiſſima.

-- *Subtus* fuſcæ, nigro undulatæ.

Rudimenta obſoleta ocellorum ſex ſ. ſeptem, in arcum ducta, ante marginem exteriorem.

89.

Zetes. 89. PAPILIO D. F. alis rotundatis: ſupra primoribus nebuloſis punctatis; poſticis fulvis punctatis. *Syſt. Nat.* 487. *n.* 184. *Clerck. t.* 43. *f.* 1.

Habitat in *Indiis.*

CORPUS tertiæ magnitudinis, nigrum.

THORACIS latera punctis albis.

ABDOMEN lateribus luteis apice incraſſato.

ANTENNÆ nigræ. *Palpi* pallidi, barbati.

PEDES nigri: anticis muticis.

ALÆ *Primores ſupra* fuſco flavoque nebuloſæ.
Faſcia albida, obſoleta, infra apicem.
Puncta inferiora feneſtrata.

Subtus pallidiores.
Faſcia undulata, fuſca, fere in medio.
Albedo quædam extra faſciam.
Puncta inter faſciam & corpus, octo, nigra, inæqualia.
Flaveſcens eſt ala verſus marginem extimum.

Poſticæ ſupra fulvæ.
Baſis fuſca, tertiam alæ partem occupans.
Margo poſticus fuſcus: Punctis rubris, 7, minutis.
Puncta Diſci nigra, 5 ad 8, diſtincta, reliqua ita adhærent fuſco colori, ut non diſtinguantur.

Subtus pallidæ, baſi nigræ.
Margo exterior cinctus linea lata, nigricante.
Puncta alba, octo, in nigredine baſeos.
Puncta nigra, novem, in diſco pallido.
Puncta albida, octo, in margine fuſco.

90.

90. PAPILIO D. F. alis rotundatis fuſcis: poſticis ſubtus maculis novem rubris in orbem digeſtis. *Syſt. Nat.* 487. *n.* 181. Ceneus.

Habitat in *Indiis.*

Corpus tertiæ magnitudinis, flavo-albicans.

Antennæ nigræ.

Pedes ſex perfecti.

Alæ *ſupra* fuſcæ, baſin verſus pallidæ.

Maculæ intra apicem exteriorem, 4 ſ. 5, oblongæ, transverſim poſitæ, flavæ.

- *Subtus Primores* fuſcæ, baſi flavæ.

Maculæ intra apicem exteriorem 6 ſ. 7, flavæ, in arcum transverſe digeſtæ.

- *Subtus Poſticæ* fuſcæ, baſi flavæ.

Maculæ diſcum fuſcum cingentes, rubræ, novem, ovato-oblongæ, in orbem digeſtæ.

6.

6. NYMPHALES GEMMATI.

Almana. 91. PAPILIO N. G. alis angulatis luteis: ſingulis ſupra ocellis ſesqui alteris: anteriore pupilla gemina. *Syſt. Nat.* 472. *n.* 89.

Edw. av. 84. *t.* 84.

Habitat in *China.*

CORPUS magnitudine & habitu P. Urticæ.

ALÆ *Primores ſupra* luteæ,

Margo anterior griſeus.

Faſciæ 4, dimidiatæ, margini antico annexæ; harum Lineæ 2 transverſæ infimam faſciolam conſtituentes.

Ocelli duo, ad marginem exteriorem, quorum anterior minor & obſcurus.

-- *Subtus* pallide nebuloſæ, undatæ.

Ocelli marginales duo: anteriore oblongo pupillis duabus.

Poſticæ ſupra luteæ.

Ocelli duo verſus angulos; quorum

Anterior maximus flavus, iride nigra, pupilla incarnata medio nigra punctis duobus albis;

Poſterior obſoletus, incarnatus iride nigra.

-- *Subtus* pallidæ.

Faſcia linearis, transverſa, pallida.

Ocelli 2 verſus marginem exteriorem, quorum anterior major pupilla duplici.

92.

92. PAPILIO N. G. alis angulatis ſupra cineraſcentibus; ſubtus punctis duobus majoribus luteo-fuſcis. *Amœn. acad.* 6. *p.* 407. *n.* 72. * Atlites.

Habitat in *Indiis*.

Corpus cinereum tertiæ magnitudinis.

Antennæ fuſcæ.

Pedes pallidi: anticis muticis.

Alæ *Primores ſupra* cineraſcentes; ad marginem anticum lineolis transverſis, fuſcis, undulatis.

Ocelli intra marginem exteriorem, ſex, inæquales, parvi, extrorſum fuſci, albo cincti.

- *Poſticæ ſupra* cineraſcentes.

Ocelli verſus marginem exteriorem, quinque, inæquales, nigri iride alba; horum duo latere interiore fulvo.

Lineolæ duæ, repandæ, fuſcæ, inter ocellos & marginem.

-- *ſubtus omnes* pallidæ.

Linea transverſa, fuſca, repanda per omnes alas.

Diſcus intra lineam lineolis fuſcis ſubundulatus.

Puncta extra lineam, in ſingulis alis, duo, lutea, pupilla nigra, iride pallidiore.

Puncta inſuper aliquot ſimplicia, parva, in eadem linea.

Oenone. 93. PAPILIO N. G. alis denticulatis, nigris subbiocellatis; posticis ad basin cyaneis ocellis duobus. *Syst. Nat.* 473. *n.* 92.

Pet gaz. t. 4. *f.* 3. Papilio maderaspatanus medius, flavedine & fulco mixtus linea cærulea insignitus.

Edw. av. 37. *t.* 37.

Ehret. tab. t. 6.

Habitat in *China*.

L.

CORPUS tertiæ magnitudinis s. vulgaris.

CAPUT nigrum.

ANTENNÆ nigræ.

ALÆ *Primores supra* nigricantes.

Fascia alba, transversa, interrupta cum Maculis duabus albis versus apicem.

Ocellus ferrugineus pupilla cærulea, pone fasciam.

Lineæ 2 ferrugineæ, ad marginem anteriorem.

- *subtus* Fascia alba interrupta; versus basin ferrugineo & cæruleo undulatæ, in medio fuscæ.

- *Posticæ supra* nigricantes margine albido, linea nigra diviso.

Macula magna, cærulea, in medio disci.

Ocelli 2 ferruginei, intra marginem posticum.

- *subtus* griseæ nebulosæ.

SEXUS alter Ocellis 2 in pagina superiore alarum posticarum.

Alter vero in pagina inferiore.

Alter Ocellis plurimis in alis posticis.

Alter Ocello sub apice alæ primoris.

VA-

VARIETAS Oenones.

ALÆ *Primores ſupra* margine nigro.

Maculæ duæ, pallidæ, inæquales, intra apicem.

Diſcus flavus margine fulvus.

-- *ſubtus* pallide flavo & fuſceſcente nebuloſæ.

Ocellus minimus, niger, cœcus, intra apicem.

Ocellus major, niger, cœcus, in diſco.

-- *Poſticæ ſupra* margine nigræ.

Diſcus flavus margine fulvus.

Baſis latior atra, in cujus medio:

Macula ovata, magna, cyanea, ſericea.

-- -- *ſubtus* primoribus concolores.

Puncta obſoleta, in area pallidiore.

Briſeis. 94. PAPILIO N. G. alis ſubdentatis ſupra fuſcis umbra pallida: primoribus ocellis duobus; ſubtus nigro bimaculatis.

Habitat in *Germania*. D. Schreber.

Corpus tertiæ magnitudinis, Simile P. Semele.

Antennæ clava ſubrotunda.

Alæ *ſupra Primores* fuſcæ ex viridi ad oculi ſitum varium micantes.

Margo anticus albus.

Faſcia quaſi e lituris ſeptem, pallidis.

Ocelli duo, nigri pupilla pallida: altero in litura prima; altero in litura quarta.

Poſticæ fuſcæ.

Umbra ſ. faſcia pallida, obſoleta.

ſubtus Primores pallidæ, ſubnebuloſæ.

Ocelli ut in pagina ſuperiore, ſed poſteriore obſoleto.

Maculæ duæ, nigricantes, verſus anteriorem marginem.

Poſticæ nebuloſæ: exterius magis obſcuræ.

Maculæ duæ, quadratæ, nigricantes, verſus baſin ſitæ.

95. PAPILIO N. G. alis dentatis griſeis punctis flaveſcentibus: omnibus ocello unico. *Syſt. Nat.* 473. *n.* 93. *Clerck. t.* - *f.* 2. Lemonias.

Habitat in *China*.

Corpus magnitudine & habitu P. Urticæ.

Alæ *Primores* falcatæ, obtuſæ.

-- *ſupra* griſeo-nebuloſæ; antice in medio lineis transverſis nigris undatis.

Ocellus niger, iride rubra, pupilla alba, ad angulum poſticum.

Poſticæ valde dentatæ.

-- *ſupra* Ocellus ad angulum anticum alæ, ſimilis primorum.

-- *ſubtus* omnes pallido undato-nebuloſæ.

Ocellus niger iride lutea, cæcus, in alis anticis ſub inferiore; nullus vero in poſticis.

Puncta 5 nigra, quorum 2 & 5 major ad marginem poſticum.

Oritya. 96. PAPILIO N. G. alis dentatis fuscis: omnibus ocellis duobus; posticis disco superiore cyaneo. *Syst. Nat.* 473. *n.* 94.

Ræs. inf. 4. *t.* 6. *f.* 2.

Edv. Orn. 26. *t.* 26.

Habitat in *China.*

Corpus habitu & magnitudine P Cardui. f. Oenones.

Alæ *Primores supra* fuscæ.

Fascia transversa, pallida.

Maculæ 2 undatæ, ad medium marginis antici.

Ocelli 2 ad marginem exteriorem, quorum Anterior parvus; Posterior major, niger.

subtus concolores, at magis obsoletæ.

Posticæ supra disco cæruleo s. cyaneo basi nigra.

Margo fuscus lineato-repandus.

Ocelli 2 rubri pupilla cærulea, intra marginem exteriorem.

subtus concolores, sed pallidiores, at versus basin nebulosæ.

97.

97. PAPILIO N. G. alis dentatis: subtus concoloribus griseis; singulis ocellis sex ferrugineis. Hedonia.

Pet. gaz. t. 39. *f.* 4. Papilio luzonicus fuliginosus oculatus & undulatus.

Habitat in *Asia.*

Corpus magnitudinis tertiæ, habitu P. Satyri.

Alæ *supra* omnes fusco-griseæ, intra cujusvis marginem:

Ocelli 6, nigri, Iride ferruginea, pupilla alba, intermediis Ocellis duobus minoribus.

— *subtus* omnes griseo cæruleoque obsoleto undatæ.

Ocelli ut in pagina superiore.

Maculæ 3, parvæ, albæ, in medio posticarum, versus marginem exteriorem.

Phædra. 98. PAPILIO N. G. alis dentatis fuscis concoloribus: primoribus ocellis duobus.

Habitat in *Germania*. D. Schreber.

Corpus tertiæ magnitudinis, totum fuscum.

Alæ *Primores* concolores, fuscæ, exterius striatæ.

Ocelli duo, distantes, nigri pupilla cærulea: anteriore ocello paulo minore.

Posticæ concolores, fuscæ, dentatæ, extrorsum striatæ.

subtus paulo magis nebulosæ versus posteriora.

Fascia obsoleta, vixque manifesta, in medio, ex atomis albidis conflata.

99.

99. PAPILIO N. G. alis dentatis fuſcis faſcia pallida: primoribus ocello; poſticis ſupra puncto. Hermione.

Pet. gaz. 12. *t.* 7. *f.* 5. Papilio luſitanicus oculatus & marmoreatus.

Reſ. inſ. 4. *pap.* 27. *t.* 3, 4.

Habitat in *Germania.*

CORPUS tertiæ magnitudinis, ſimile P. Semeli duplo major.

ALÆ *Primores ſupra* fuſcæ.

Faſcia pallide flaveſcens, in exteriori ala.

Ocellus vel nullus
vel unicus in anteriore faſciæ parte, obſoletus, & punctum in ejusdem poſteriore parte fuſcum.

ſubtus fuſceſcentes.

Faſcia ſuperiori oppoſita, magis flava.

Ocellus niger pupilla alba, in anteriore faſciæ parte.

Poſticæ ſupra fuſcæ, dentatæ.

Faſcia pallida, flaveſcens, continuata a primorum faſcia.

Punctum nigrum centro albo, pone faſciam.

ſubtus fuſco-nebuloſæ.

Faſcia lata, alba, ſubnebuloſa atomis fuſcis.

Punctum nigrum centro albo, pone faſciam, uti ſupra, ſed in omnibus individuis non conſpicuum.

Deianira. 100. PAPILIO N. G. alis dentatis fuſcis: primoribus utrinque ocellis quinque; poſticis ſex faſciaque alba repanda.

Reſ. inſ. 4. *t.* 33. *f.* 1, 2.

Habitat in *Germania.* D. Schreber.

Corpus tertiæ magnitudinis, ſimile P. Mineo ſ. Ægiræ.

Antennæ nigræ, ſubclavatæ, annulis albis numeroſiſſimis, apice ſubferrugineæ.

Palpi ſupra albi. Lineola alba pone oculos.

Alæ *ſupra* omnes fuſcæ, ſubdenticulatæ, margine albido.

Ocelli Primoribus quinque, nigri, cæci, iride ferruginea, in ſeriem digeſti: quorum tres anteriores paulo minores.

Ocelli poſticis ſimiles, etiam quinque, ſed tertio minuto.

ſubtus griſeo-fuſcescentes.

Litura pallida ante ocellos, in poſticis.

Margo repandus lineolis duabus, repandis, pallidis.

Ocelli Primoribus quinque ut ſupra, ſed 1, 2, 5 pupilla ſ. puncto albo minuto.

Ocelli Poſticis ſex, ſuperioribus oppoſiti & ſimiles, ſed omnes puncto ſ. pupilla alba, at Ocellus tertius minutiſſimus & ſextus duplici pupilla.

101. PAPILIO N. G. alis dentatis: ſupra cæruleo fuſcoque undulatis; omnibus ocellis ſex. *Syſt. Nat.* 473. *n.* 95. *Clerck. t.* 31. *f.* 1. Feronia.

Habitat - - - -

Corpus ſecundæ magnitudinis, fuſcum punctis cæruleſcentibus.

Antennæ nigræ.

Oculi rufi.

Pedes albidi.

Alæ *Primores ſupra* undulatæ nigro cæruleo cinereoque.

Macula verſus marginem anteriorem rufa, nigro inſcripta.

Ocelli 6 nigri, iride cærulea, pupilla alba, verſus marginem tenuiorem.

-- - *ſubtus* denticulatæ, fuſcæ, verſus baſin albidæ.

Maculæ 20 circiter, oblongæ, albæ; 6 rotundatæ, minores.

Macula 1, oblonga, rufa nigro cincta, ad marginem anteriorem pellucens.

-- *Poſticæ ſupra* ſimiles primoribus, nigro cinereo cæruleoque undatæ.

Ocelli 6 nigri, Iride cærulea, pupilla ad marginem poſticum.

-- - *ſubtus* albidæ.

Lineolæ circiter 3, repandæ, fuſcæ, quarum margini poſtico proxima craſſior, intra quam literæ O quatuor nigræ.

102.

Tulbaghia. 102. PAPILIO N. G. alis dentatis subconcoloribus fuscescentibus fascia lutea; posticis ocellis quinque.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus secundæ magnitudinis.

Antennæ filiformi-clavatæ, nigræ.

Pedes sex, anticis muticis.

Alæ *Primores supra* ferrugineo-fuscæ.

Maculæ luteæ variæ: Duæ ad exteriorem partem marginis antici, transversæ; Quinque subrotundæ ad marginem exteriorem, quarum posteriores minores. Unica major, quasi fascia dimidiata, a posticarum fascia continuata.

Margo exterior albus, repandus.

— — *subtus* fuscæ umbra nigra.

Maculæ eædem, quæ supra, & unica insuper ad marginem anteriorem, corpori propiorem.

— *Posticæ supra* ferrugineo-fuscæ.

Fascia lutea, obliqua, ab angulo ani ad fasciam primorum ducta.

Ocelli pone fasciam, quatuor, magni, nigri pupilla cærulea, quorum medii approximati, ultimo minuto.

Strigæ duæ, fuscescentes, undulatæ, ante marginem subdentatum album.

— — *subtus* fuscæ versus basin strigis atris undulatis & punctum album ad marginem anticum.

Ocelli ut supra, sed quinque: primus enim in pagina superiore deficit; horum secundus & tertius magis distantes; omnes annulo duplici nigro, disco ferrugineo, pupilla alba, sed 4 & 5 pupilla atra medio alba.

Strigæ posticæ & margo ut supra.

103.

103. PAPILIO N. G. alis crenatis nigris concoloribus; posticis disco fulvis ocellis septem. *Syst. Nat.* 476. *n.* 108. *Clerck. t.* 26. *f.* 2. Pipleis.

Habitat in *Indiis*.

Corpus secundæ magnitudinis, nigrum cum Antennis & pedibus, crassiusculum.

Alæ *Primores supra* nigræ, repando-crenatæ, basi luteæ.

Fascia alba, transversa, in medio alæ, ex Maculis 7 albis parallelis.

Fascia transversa, intra marginem exteriorem, ex Maculis 7, cæruleo-albis, ad angulum posticum priori connexa.

Maculæ lunatæ, 5, albæ, intra marginem exteriorem.

— — *subtus* flavescentes fascia dimidiata, alba, maculaque varia nigra alba cinerea.

— *Posticæ supra* margine nigro linea lutea interstincto.

Discus fulvus; basin versus nigra est ala.

Maculæ 7, ovales, nigræ, pupillis albis, parallelæ, intra marginem posteriorem.

— — *subtus* grisescentes.

Arcus e punctis crassis, 7, nigris, postice; alius ordo medius transversus e 7 punctis minoribus nigris; basis nigro albo cinereoque variegata.

Lampetia. 104. PAPILIO N. G. alis crenatis: primoribus fuſcelcentibus faſcia flava; poſticis ſupra ocellis ſex. *Syſt. Nat.* 476. *n.* 109. *Clerck. t.* 39. *f.* 2.

Habitat in *Indiis.*

Corpus mediæ magnitudinis.

Alæ *Primores ſupra* griſeæ, exterius fuſcæ.

Faſcia flava, lata, ovata, ſubtus pallidior.

-- *Poſticæ ſupra* griſeæ, ad marginem exteriorem fuſcæ.

Ocelli ſex, nigri iride ferruginea, intra marginem poſticum concatenati.

-- *ſubtus* concolores primoribus.

7.

7. NYMPHALES PHALERATI.

105. PAPILIO N. P. alis angulatis fuſcis: primoribus faſcia flaveſcente: omnibus ſubtus albo nigroque undulatis. *Syſt. Nat.* 477. *n.* 117. Dirce.

β. Papilio *Butes*. *Syſt. Nat.* 485. *n.* 169. *Cierck. t.* 36. *f.* 3.

Habitat in *Indiis*.

CORPUS magnitudine P. Urticæ.

ANTENNÆ ferrugineæ, apice nigræ.

ALÆ *Primores ſupra* fuſcæ, immaculatæ.
Faſcia flava, transverſa, in medio.

— — *ſubtus* cinereo nigroque undulatæ.
Faſcia flaveſcens, ut ſupra.

— *Poſticæ ſupra* fuſcæ, immaculatæ.

— — *ſubtus* primoribus concolores.
Faſcia flaveſcens, ut in primoribus.
Angulus acutus poſticæ.

Amathea. 106. PAPILIO N. P. alis angulatis: ſupra fuſcis albo punctatis: faſcia rubra: linea nigra undata. *Syſt. Nat.* 478. *n.* 118. *Clerck. t.* 40. *f.* 3.

Habitat in *Indiis.*

Corpus habitu & magnitudine P. Atalantæ.

Antennæ fuſcæ apicibus flaveſcentibus.

Pedes flaveſcentes, 6: anticis brevibus.

Alæ *Primores ſupra* fuſcæ:

Exterior medietas adſperſa Punctis albis, circiter 12; ad marginem craſſiorem Lineolæ 2 transverſæ, undatæ.

Faſcia poſtea fracta, rubra, per alas ad angulum ani poſticarum deſcendit, perreptata a Linea nigra undata.

— *Poſticæ ſupra* griſeæ.

Faſcia rubra deſcendit a ſuperiore ad angulum ani, linea perreptata nigra undulata.

Puncta lunata, 5, intra marginem alæ poſticum, quorum primoribus proxima alba.

— — *ſubtus* omnes alæ griſeo, luteo, fuſcoque nebuloſæ, venisque undatæ, verſus exteriora Punctis ſ. Maculis parvis adſperſæ.

Varietas Macula fuſca ad angulum poſticum primorum paginæ inferioris.

Punctum fuſcum in medio ejusdem paginæ.

107.

107. PAPILIO N. P. alis angulatis pallidis lineis undatis: primoribus puncto unico; posticis duobus nigris. *Amœn. acad. 6. p. 408. n. 73.* Jatrophæ.

Merian. surin. 4. t. 4. in Jatropha.

Habitat in *America* australi.

Corpus tertiæ magnitudinis, supra fuscum, subtus album.

Antennæ fuscæ, apice pellucidæ.

Pedes sex, sed primores mutici.

Alæ omnes supra albidæ, fusco & lineis repandis fulcis variegatæ.

-- *subtus* omnes albidæ, pellucido & lineis ferrugineis variegatæ.

-- *Primores* utrinque Puncto fusco, flavo cincto, in disco alæ.

-- *Posticæ* denticulatæ & angulatæ, vix perfecte caudatæ.

Puncta 2 fusca, flavo cincta, in disco utrinque.

Venilia. 108. PAPILIO N. P. alis dentatis fuſcis: faſcia communi arcuata alba marginibus cæruleſcente. *Syſt. Nat.* 478. *n.* 120. *Clerck. t.* 32. *f.* 4.

Habitat in *Indiis*.

Corpus magnitudine P. Urticæ.

Alæ *ſupra* omnes nigræ, obſolete & vix manifeſte dentatæ.

Puncta albida cingunt alas.

Faſcia alba, lata, arcuata, marginibus ſuis undique cæruleſcens, ab angulo ani ducit ad medium diſci alæ primoris.

Puncta duo, majuſcula, alba, intra apicem primorum.

- *ſubtus* concolores, ſed pallidiores, & puncta marginalia magis confluunt in lineam.

109. PAPILIO N. P. alis dentatis atris: fascia cærulea interrupta; singulis punctis septem albidis marginalibus. *Syst. Nat.* 478. *n.* 121. *Clerck. t.* 32. *f.* 1. Alimena.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Thorax & Abdomen nigra.

Antennæ nigræ, articulis subtus albidis.

Puncta duo alba pone antennas.

Oculorum exterior margo albus.

Palpi subtus albi.

Alæ *Primores supra* atræ.

Fascia cærulea, transversa ex Maculis 7 parallelis.

Puncta 7 s. 8, albida, transversim versus marginem.

Margo exterior subsinuatus, albo pictus.

-- *subtus* ferrugineæ.

Margo anterior versus basin nigricans albo adspersus.

Fascia virescens, transversa, antice abbreviata.

Puncta 8, alba, versus marginem.

Margo albo varius s. pictus.

-- *Posticæ supra* primoribus concolores, margine subrepando.

-- *subtus* similes anterioribus.

Leucochoë. 110. PAPILIO N. P. alis dentatis: ſupra fuſcis, ſubtus luteis: faſciis tribus macularibus albis nigro notatis. *Syſt. Nat.* 478. *n.* 122.

β. Papilio *Hylas* alis dentatis, ſupra fuſcis, ſubtus luteſcentibus: faſciis utrinque tribus albis interruptis. *Syſt. Nat.* 486. *n.* 173. *Clerck. t.* 40. *f.* 4.

Habitat in *Aſia.*

CORPUS tertiæ magnitudinis, nigricans; *Thorace* ſupra æneo.

ALÆ *ſupra omnes* fuſcæ.

Linea alba, lanceolata, bis interrupta, a baſi anticarum ad earum medium ducta.

Faſcia arcuata e Maculis albis cingit alas omnes in medio: hæ Maculæ disjunctæ in primoribus; coadunatæ in poſticis.

Ordo e Maculis albis, parvis, arcuatus intra marginem anticarum & per Diſcum poſticarum ductus: hæ Maculæ in primoribus minores; in poſticis majores.

Margo ipſe ſæpe lineola nigra repanda, utrinque alba, cinctus.

— *ſubtus omnes* teſtaceo-luteæ Maculis iisdem quibus ſupra.

FEMINA Antennis nigris (Mas ferrugineis).

Linea alæ anticæ ter nigro interrupta utrinque.

Baſis antica alæ poſticæ lutea, nec alba.

Faſcia antica alæ poſticæ in ſingulis maculis notatur utrinque puncto nigro.

111.

111. PAPILIO N. P. alis dentatis fulvis fasciis tribus fuscis: primorum longitudinalibus, posticarum transversis. *Syst. Nat.* 478. *n.* 123. Phæruſa?

Rœs. inſ. 4. *p.* 24. *t.* 2. *f.* 1.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Antennæ fuscæ, apice subtus flavescentes.

Alæ *Primores supra* fulvæ: fasciis tribus, fuscis, longitudinalibus:

Fascia a basi ad marginem exteriorem ducta.

Fascia a margine antico versus marginem posticum.

Fascia a margine apicem occupat.

-- - *subtus* similes & concolores.

-- *Posticæ supra* fulvæ, fasciis 3 fuscis transversis.

Fascia marginalis anterioris marginis.

Fascia transversalis per medium discum.

Fascia marginalis marginis posterioris.

Margo repandus, cordato-punctatus.

-- - *subtus* similes, sed pallidiores.

Fasciæ omnes margine exteriore connectuntur.

Janaſſa. 112. PAPILIO N. P. alis dentatis ſupra nigris: faſcia flava diſcoque cæruleſcente; ſingulis ſubtus punctis tribus atris.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Alæ *Primores ſupra* nigræ apice albo.
Faſcia flava, transverſa.
Margo poſterior cæruleſcens.

-- - *ſubtus* cinereæ apice albo.
Faſcia albida, transverſa.
Puncta tria, atra, verſus baſin.

-- *Poſticæ ſupra* atræ.
Diſcus cæruleſcens.

-- - *ſubtus* cineraſcentes.
Linea ſ. Faſcia undulata, transverſa, albida.
Puncta tria, atra, verſus baſin.

113.

113. PAPILIO N. P. alis dentatis ſupra nigris: primoribus maculis duabus; poſticis ſolitaria albo-cæruleis. *Syſt. Nat.* 479. *n.* 124. *Clerck. t.* 21. *f.* 2. Bolina.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis, nigrum. *Collum* albo punctatum. *Femora* & *Palpi* ſubtus albi.

Alæ *Primores ſupra* atræ, margine omnium denticulatocrenaturis albis.

Macula violacea, in medio albida, oblonga, transverſa, in medio alæ.

Macula alba, minor, vix cæruleſcens, intra apicem alæ.

— — *ſubtus* griſeſcente-fuſcæ.

Margo anticus verſus baſin nigricans, punctis albis variis.

Faſcia alba, e quinque Maculis interrupta, in medio alæ.

Puncta bina, majora, oblongiuſcula, alba, intra apicem, & puncta ſex cæruleſcentia ante marginem exteriorem.

Margo lunulis albidis gemino ordine variegatus.

— *Poſticæ ſupra* primoribus concolores.

Macula magna, violacea, diſco albo, in medio alæ.

— — *ſubtus* ſimiles primoribus.

Faſcia albida: baſi & apice interrupta Macula albidiore.

Puncta ſex, cæruleſcentia, ante marginem poſticum, in ſeriem digeſta.

Margo poſticus ex duplici ſerie lunularum albidarum.

Clytia. 114. PAPILIO N. P. alis dentatis nigris: margine exteriore primoribus albo maculato, posticis albo luteoque triplici ordine. *Syst. Nat.* 479. *n.* 125.

Habitat in *Indiis.*

Corpus tertiæ magnitudinis, nigrum, punctis albis adspersum.

Antennæ clavatæ nigræ.

Pedes nigri.

Alæ *Primores* nigræ:

ad marginem exteriorem serie duplici albopunctatæ s. maculatæ.

— *Posticæ* nigræ, intra marginem posticum triplici serie maculatæ.

Series prima Maculis albis, sagittatis.

Series secunda Maculis albis, lunatis intima lutea.

Series tertia Maculis luteis, reniformibus.

Obs. quod series tertia s. exterior a pagina superiore desit.

115.

115. PAPILIO N. P. alis dentatis: ſupra fuſcis albo-maculatis; ſubtus maculis albis linea rubra cinctis. *Syſt. Nat.* 479. *n.* 126. Neæra.

Edw. av. 33. *t.* 33.

Habitat in *Indiis.*

Corpus magnitudinis 4. ſ. P. Urticæ.

Alæ *ſupra* omnes fuſcæ.

Faſcia alba, lata, brevis, communis ab angulo ani ad medium anteriorum.

Macula alba, magna, in diſco primorum.

Puncta aliquot, alba, intra marginem exteriorem omnium.

Angulus ani ſupra ruber.

— *ſubtus* in primoribus:

Maculæ 3 ſ. 4, magnæ, albæ, quas fuſca lineaque rubra diſtinguunt

Puncta 3, alba, intra apicem.

— *Poſticæ* valde dentatæ.

Diſcus maximus, albus, cinctus linea rubra.

Macula parva, alba, intra poſticam magnam.

Aceſta. 116. PAPILIO N. P. alis ſubdentatis: primoribus nigris baſi faſciaque flavis; poſticis flavis: ſubtus faſciis fuſcis. *Syſt. Nat.* 479. *n.* 127. *Clerck. t.* 43. *f.* 3.

Habitat in *Indiis*.

Corpus quintæ magnitudinis.

Alæ *Primores ſupra* nigræ, baſi flavæ.

Faſcia linearis, transverſa, in medio flava.

Puncta 3, alba, intra apicem.

-- - *ſubtus* fuſcæ, baſi flaveſcentes: venis latis, fuſcis, transverſis, inæqualibus, ſparſis.

Faſcia linearis, transverſa, flava, ut a pagina ſuperiore.

-- *Poſticæ ſupra* flavæ.

Margo poſticus dentibus 3, obtuſis.

Puncta 3, nigra; in ſingulo dente alæ ſingula.

-- - *ſubtus* flaveſcenti-pallidæ: venis fuſcis, latis, transverſis, numeroſis.

Puncta 2, intra dentes alæ, ut in pagina ſuperiore, ſed majora.

117.

117. PAPILIO N. P. alis ſubrepandis nigris concoloribus: punctis cæruleſcentibus baſin verſus lineatis. *Syſt. Nat.* 479. *n.* 128. *Clerck. t.* 16. *f.* 3. Similis,

Pet. gaz. 11. *t.* 92. *f.* 13.

gaz. 6. *t.* 3. *f.* 4? Papilio gvineenſis nigreſcens lituris albis adſperſus.

Habitat in *Aſia.*

CORPUS magnitudine P. Atalantæ, nigrum.

ANTENNÆ nigræ, ſubclavatæ.

THORAX albo-punctatus, maculatusque.

ALÆ concolores, vix denticulatæ, & fere integerrimæ: ſupra nigricantes; ſubtus fuſcæ.

-- *Primores*: lineæ quatuor, albidæ, ad baſin alæ coëuntes; harum duæ intermediæ duplo latiores, bifidæ.

Maculæ plurimæ, albidæ, ſparſæ, extra priores lineas: quarum tres anticæ diſtinctæ a reliquis duabus lineolis.

-- *Poſticæ* verſus baſin albidæ, venis nigricantibus & ramoſis diviſæ.

Subtus verſus poſtica eſt Macula nigra, notata duobus punctis albis, quæ hujus ſpeciei nota eſſentialis.

VARIETAS forte; an Femina?

Simillima priori, ſed major & Maculis magis cæruleis.

Alæ poſticæ ſubtus ſubferrugineæ, absque Macula iſta nigra.

118.

assimilis. 118. PAPILIO N.? P. alis subrepandis nigris concoloribus lineis punctisque subcæruleſcentibus; poſticis maculis coccineis. *Syſt. Nat.* 479. *n.* 129. *Clerck. t.* 16. *f.* 1.

Habitat in *China.*

Corpus tertiæ magnitudinis, P. ſimili ſatis ſimile.

Antennæ clavatæ, nigræ.

Thorax ſupra albidus lineis duabus nigris.

Pectus & Collum nigrum, albo punctatum.

Palpi nigri, fronte alba.

Abdomen nigrum, ſubtus lineis tribus, longitudinalibus, albidis.

Pedes ſex, perfecti.

Alæ *Primores* concolores, nigræ, maculis cæruleſcenti ſ. vireſcenti albis.

Lineæ 2 ſ. 3, verſus baſin alæ, baſi connexæ.

Tota ala adſperſa maculis; quarum quæ in diſco oblongiores; verſus exteriorem vero marginem ſubrotundæ & minores.

— *Poſticæ* concolores, repandæ, lineatæ lineis albido-vireſcentibus, inæqualibus & poſtice notatæ aliquot punctis albis. Area poſtica atra, notata Maculis quinque, ſubrotundis, ſanguineis; quarum ano proxima didyma; huic proxima, in medio, puncto nigro notata; extima minutiſſima.

119. PAPILIO N. P. alis dentatis dilatato-venosis subconcoloribus: maculis sagittatis albidis: postremis subtus luteis. *Syst. Nat.* 479. *n.* 130. *Clerck. t.* 16. *f.* 2. dissimilis.

Ehret. pict. t. 16.

Habitat in *China*.

Corpus secundæ magnitudinis, nigricans.

Antennæ subclavatæ, nigræ.

Thorax albescente variegatus.

Abdomen lineis 5, albidis, longitudinalibus.

Pedes sex, perfecti.

Alæ *Primores* subconcolores, undique adspersæ Maculis oblongis: versus basin lineatis, in medio sagittatis; extimo minores sunt hæ Maculæ supra flavescenti-albæ, subtus cærulescenti-albæ.

* *Posticæ* similiter fere pictæ cum primoribus, sed Maculæ distinctæ quasi venis latis nigris

Maculæ posticæ supra simplici serie, lunares, pallidæ, quarum ano proxima lutea; subtus vero duplici serie, quarum series postica tota lutea.

Neſæa. 120. PAPILIO N. P. alis dentatis fuſcis pallido lineatis; ſubtus nebuloſis.

Habitat in *Aſia*.

Corpus tertiæ magnitudinis, fuſcum.

Alæ *Primores ſupra* ſubdentatæ, fuſcæ.

Lineæ 5 ſ. 6, a baſi verſus marginem exteriorem ductæ, albicantes, verſus baſin concurrentes.

-- *Poſticæ ſupra* ſimiles primoribus, ſed puncta aliquot pallida pone lineas.

-- -- *ſubtus* omnes ſimiles, nebuloſæ ex fuſco & albido intime mixto.

121.

121. PAPILIO N. P. alis dentatis concoloribus fuſcis faſcia alba, ſubtus luteſcentibus. Prorſa.

Rœſel inſ. 3. *t.* 70. *f.* 1, 2, 3.

Habitat in *Germania.*

Corpus tertiæ magnitudinis, nigrum.

Antennæ ſubclavatæ, nigræ, apice ferrugineæ.

Pedes ſex, perfecti.

Alæ *Primores ſupra* nigræ.

Faſcia alba e Maculis albis.

Macula una alterave, inter faſciam & corpus, alba.

Maculæ duæ & una, albæ, extra faſciam.

-- - *ſubtus* luteæ, punctis & lituris nigris adſperſæ.

Faſciæ & Maculæ fere ut ſupra.

-- *Poſticæ ſupra* nigræ, dentatæ.

Faſcia alba nervis interſecta.

-- - *ſubtus* ut in primoribus, luteæ lituris nigris.

Faſcia alba, ut ſupra.

Ordo duplex punctorum nigrorum, pone faſciam.

Lunaris alba Macula verſus marginem poſticum.

Obſ. *Hæc deſcriptio facta eſt ad Papilionem Rœſ* 3. *t.* 70. *f.* 1, 2, 3. *quam credit meram varietatem Camillæ; Rœſelii vero pag.* 1. *t.* 8. *f* 6, 7. *alia omnino ab hac propoſita eſt ſpecies.*

122.

Camilla. 122. PAPILIO N. P. alis dentatis fuscis subconcoloribus albo fasciatis maculatisque: angulo ani rubro.

Papilio *Aphion* alis dentatis fuscis: primoribus maculis albis ter geminis, posticis sex transversis. *Syst. Nat.* 486. *n.* 177.

Pet. gaz. 12. *t.* 12. *f.* 10. Papilio e fusco & albo eleganter mixto, e promontorio tricuspidato.

Habitat in Lonicera cærulea *Germania.*

Corpus tertiæ magnitudinis, statura P. Populi.

Pedes antici mutici.

Alæ *supra omnes* nigricantes.

-- *Primores* Fascia arcuata, alba, in medio interrupta in Maculas, quarum mediæ minores.
Puncta aliquot, alba, versus apicem.

-- *Posticæ* fascia cuneiformi alba solum nervis dissecta.
Macula ad angulum ani rubra cum Punctis duobus nigris majusculis.

-- *Subtus omnes* flavescentes.
Fascia cærulescenti-albida, extra quam Puncta angulata duplici serie.

Differt imprimis a Præcedenti Macula rubra alarum posticarum ad angulum ani, quam in quibusdam deesse observavit Rœselius.

123.

123. PAPILIO N. P. alis crenatis flavis fascia communi argentea; subtus fascia lanceolata argentea. *Syst. Nat.* 481. *n.* 139. *Clerck. t.* 39. *f.* 3. Cytherea.

Habitat in *Indiis*.

Corpus magnitudine P. Urticæ.

Alæ *Primores supra* cinereo-nebulosæ basi & margine exteriore, cæterum disco flavo.

-- - *subtus* flavæ.

Margo exterior omnium undique lunulis argenteis repandus.

Basis lineis argenteis & fuscis undata.

-- *Posticæ* totæ cinereo-nebulosæ.

Fascia lactea, lanceolata, ab angulo ani ad discum primorum ducit.

Angulus ani flavus.

-- - *subtus* Fascia lanceolata, argentea, ab angulo ani ad discum anteriorem, ut in pagina superiore.

Vanillæ. 124. PAPILIO N. P. alis dentatis flavis nigro-maculatis; ſubtus maculis XXX argenteis. *Syſt. Nat.* 482. *n.* 144. *Clerck. t.* 40. *f.* 2.

Merian. ſurin. 25. *t.* 25.

Sloan. jam. 2. *p.* 214. *t.* 239. *f.* 23. 24.

Habitat in *America.*

CORPUS tertiæ magnitudinis, luteum, ex argentatorum familia.

ANTENNÆ nigræ, apice luteæ.

PEDES nigri.

ALÆ *Primores ſupra* ſaturate luteæ, lineis nigris, dilatatis, verſus marginis exterioris venas.

Puncta vaga, 5 ſ. 7, nigra, in diſco.

— — *ſubtus* luteæ, verſus apices ſordeſcentes.

Maculæ ſ. Puncta circiter 7, nigra, ſparſa per diſcum, quorum 2 margini antico propiora medio argentea.

Maculæ inſuper ſ. Puncta argentea 6, verſus apices, adeoque puncta in his circiter 8 ſimul.

— *Poſticæ ſupra* concolores, luteæ.

Faſcia marginalis dentata, nigra, intra quam Puncta 7, majora, lutea.

Punctum unum alterumve nigrum, in diſco.

— — *ſubtus* per totum diſcum pictæ & adſperſæ:

Maculis oblongis, Punctisque rotondatis circiter 22, quorum quæ margini poſtico propiora magis puncta, baſi vero propiora Lineas argenteas referunt.

125.

125. PAPILIO N. P. alis dentatis atris: primoribus fascia cærulea; posticis lutea. *Syst. Nat.* 486. *n.* 175. Ancæus.

Habitat in *Indiis*.

Corpus fuscum, tertiæ magnitudinis.

Antennæ fuscæ, apice pallidæ.

Pedes sex anticis muticis.

Alæ *Primores supra* atræ.
Fascia cærulea, transversa.

-- *Posticæ supra* atræ.
Fascia lutea, transversa.

-- *Primores subtus* virescentes.
Fascia cærulea, transversalis.
Ala inter basin & fasciam magis fusca, sed versus marginem crassiorem parum ferrugineo-undata.

-- *Posticæ subtus* virescentes.
Lineolæ tres, transversæ, griseæ; quarum antica postice alboida.
Puncta quatuor, inter lineas duas posteriores transversim digesta; horum Puncta duo lateralia nigra; intermedia vero alba.

SEXUS differentia, forte Maris? similis subtus priori, sed
Supra, inter fasciam & basin, versus marginem anteriorem, Lunula ferruginea.
Alæ posticæ supra carent fascia lutea.

Tiphus. 126. PAPILIO N. P. alis ſubcaudatis ſupra nigris: primoribus maculis duabus; poſticis diſco albo margine rubro. *Syſt. Nat.* 485. *n.* 170. *Clerck. t.* 32. *f.* 3.

Habitat in *Indiis.*

Corpus nigrum, tertiæ magnitudinis.

Antennæ nigræ annulis albis.

Pedes antici mutici.

Alæ *Primores ſupra* nigræ.

Maculæ duæ, albæ, magnæ, in medio: harum poſterior marginem poſticum tangit.

Puncta quatuor, alba, intra marginem exteriorem.

— — *ſubtus* fuſcæ venis rubris.

Maculæ tres, albæ, magnæ.

Maculæ minores, albæ, ad marginem exteriorem.

— *Poſticæ ſupra* nigræ.

Faſcia alba, lata.

Punctum rubrum, ad angulum ani.

— — *ſubtus* faſciæ venis rubris.

Diſcus albus, cinctus linea rubra poſtice circumdata punctis nigris.

Maculæ intra marginem poſticum, ſex, albidæ, parvæ, ovatæ.

127.

127. PAPILIO N. P. alis fuſcis: primoribus ſupra maculis quatuor albidis; poſticis faſcia albida. *Syſt. Nat.* 488. *n.* 190. *Clerck. t.* 46. *f.* 1, 2. Nauplius.

Habitat in *Indiis.*

Corpus quartæ magnitudinis, fuſcum, ſubtus cinereum.

Antennæ nigricantes annulis albis.

Pedes ſex perfecti, pallidi.

Alæ *Primores ſupra* obſcure fuſcæ, oblongæ.
Maculæ quatuor, albæ, ſubrotundæ, ſparſæ.
Margo apicis albidus.

-- - *ſubtus* fuſcæ.
Maculæ 4, 5 ſ. 6, albidæ, ſparſæ.
Macula ad baſin alæ, flava, oblonga.

-- *Poſticæ ſupra* nigro-fuſcæ, integerrimæ.
Faſcia transverſa in aliis alba, in aliis flava.
Verſus marginem poſticum in quibusdam lineola transverſa, ferruginea, undulata.

-- - *ſubtus*:
Faſcia transverſa, lata, alba, nigro picta ſ. cincta.
Ante faſciam flavedo transverſalis.
Faſcia ferruginea, transverſalis, verſus marginem poſticum.
In quibusdam Maculæ marginales 8-10, argenteæ.
In aliis ad apicem Macula lunaris, alba.

Idmon. 128. PAPILIO N. P. alis crenatis fuſcis: primoribus utrinque faſcia alba. *Syſt. Nat.* 486. *n.* 174.

Habitat in *Indiis*.

Corpus tertiæ magnitudinis.

Antennæ flaveſcenti-fuſcæ.

Pedes flaveſcentes.

Alæ *Primores ſupra* fuſcæ.
Faſcia nivea, transverſa.
-- - *ſubtus* ferrugineo-fuſcæ.
Faſcia eadem, quæ ſupra.
-- *Poſticæ ſupra* fuſcæ, immaculatæ.
-- - *ſubtus* ferrugineo-fuſcæ, immaculatæ.

129.

129. PAPILIO N. P. alis angulatis: ſupra fuſcis faſcia alba maculaque ferruginea anguli ani. *Syſt. Nat.* 486. *n.* 172. *Clerck. t.* 41. *f.* 3. Iphiclus.

Habitat in *Indiis.*

Corpus nigrum, tertiæ magnitudinis ſ. P. Urticæ.

Antennæ nigræ.

Pedes ſex unguiculati.

Alæ *ſupra omnes* nigræ, fuſco-nebuloſæ.

Faſcia alba, lanceolata, transverſalis, a medio alæ primoris ad angulum ani ducta.

Macula ferruginea, magna, intra apicem alæ primoris.

Macula alia ſimilis, ſed minor, ad angulum ani poſticarum.

— — *ſubtus omnes* fuſco-flaveſcentes, albo-variegatæ, cum faſcia alba.

Eleus. 130. PAPILIO N. P. alis dentatis fuſco-nebuloſis: faſcia primoribus flava; poſticis alba. *Syſt. Nat.* 486. *n.* 176.

Habitat in *Indiis.*

CORPUS tertiæ magnitudinis.

ANTENNÆ fuſcæ, apice flavæ.

PEDES flaveſcentes.

ALÆ *Primores ſupra* baſi margineque exteriore fuſco nebuloſæ.

Faſcia diſci lata, flava.

-- *Poſticæ ſupra* flavo-nebuloſæ.

Faſcia alba, transverſa, anguſta, quæ etiam tangit anteriorum.

-- - *ſubtus* omnes flaveſcentes margine albo undulato.

Faſcia alba feneſtrata ſ. perſpicua.

8.

8. PLEBEJI RURALES.

131. PAPILIO P. R. alis poſticis ſexdentato-caudatis; ſubtus albidis maculis argenteis. *Syſt. Nat.* 482. *n.* 145. Cupido.

Muſ. petrop. 690. *n.* 351. Papilio prædatrix parva, alis ſuperioribus albis: inferioribus punctis aureis elegantiſſime exornatis.

Rœſ. inſ. 4. *p.* 27. *t.* 3. *f.* 7.

Merian. ſurin. t. 10. *f.* 1.

Pet. gaz. t. 10. *f.* 9. Papilio ſurinamenſis caudatus minor, verruculis ex aureo argenteis ſubtus eleganter adſperſis.

Habitat in *America.*

Corpus quartæ magnitudinis, flaveſcens.

Antennæ fuſcæ annulis nigris, clavis anguſtiſſimis.

Pedes flaveſcentes.

Alæ *Primores ſupra* luteo-fuſcæ, diſco albo.

-- - *Subtus* ſimiles, at:

Faſcia griſea refracta.

Margo poſticus argento circumſcriptus.

-- *Poſticæ* poſtice exeuntes Dentibus 6, quorum tertius ab angulo ani linearis longitudine alæ.

-- *ſupra* luteo-fuſcæ margine argenteo.

-- *ſubtus* verſus baſin ſubincarnatæ, at verſus dentes flaveſcentes.

Maculæ circiter 21, nitidiſſimæ, convexæ, ovatæ quaſi ex ſolido argento confectæ.

Quercus. 132. PAPILIO P. R. alis ſubcaudatis: ſupra cæruleis; ſubtus cinereis linea alba, puncto ani gemino fulvo. *Syſt. Nat.* 482. *n.* 148. *Fn.* 2. *n.* 1071.

Alb. inſ. t. 52. *f. b. c. a.*

Rœſ. inſ. 1. *pap.* 2. *t.* 9.

Wilk. pap. 61. *t.* 1. *a.* 1.

Pet. gaz. 18. *t.* 11. *f.* 9. Papilio minor fuſcus, ſubtus ſtriatus.

Habitat in *Quercubus* Europæ.

Corpus magnitudine P. Argi.

Alæ *ſuperiores ſupra* nigræ, verſus poſticas cyaneæ.

— — *ſubtus* cinereæ.

Linea transverſalis, albida.

— *Poſticæ ſupra* viridi-cæruleæ, nitidiſſimæ, poſticę Cauda brevi, ſetacea terminatæ.

— — *ſubtus* cinereæ.

Linea transverſa, albida, repanda,

Maculæ 2, rubræ, verſus angulum ani.

133.

133. PAPILIO P. R. alis bicaudatis: ſupra cæruleis; ſubtus cæruleſcentibus punctis nigris. *Syſt. Nat.* 482. *n.* 149. *Clerck. t.* 41. *f.* 1. Marſyas.

Edw. av. t. 81.

Habitat in *Indiis.*

CORPUS tertiæ magnitudinis ſ. vulgaris, cæruleum.

ANTENNÆ fuſcæ, parum admodum capitatæ.

PEDES cineraſcentes.

ALÆ *Primores ſupra* cæruleæ, nitidiſſimæ, apicibus nigris.

-- - *ſubtus* cinereo-cæruleſcentes; Punctis ſparſis, nigris, margine albis.

-- *Poſticæ ſupra* cæruleæ, nitidæ, margine antico nigro; inter ſ. ante dentes Ocellus niger.

-- - *ſubtus* cinereo-cæruleſcentes.

Linea poſtice una alterave nigra undata.

Maculæ 2, atræ, reniformes, parvæ, pone priorem, verſus marginem & angulum ani.

134.

Telamon. 134. PAPILIO P. R. alis biangulatis subcaudatis cinereis: fasciis albis maculaque nigra flavaque. *Syst. Nat.* 486. *n.* 178.

Habitat in *Indiis.*

Corpus quartæ magnitudinis s. P. Urticæ.

Alæ conjunctæ simul considerandæ, cinereæ.

Fascia alba, lanceolata, a medio alarum anticarum ad angulum ani posticarum.

Fasciæ 2, lineares, parallelæ, intra fasciam albam.

Macula flava, ad angulum ani in ala primore.

Angulus ani in posticis flavus, nigro notatus.

Posticæ, postice exeunt in 2 angulos.

Angulus ani rotundatus, ferrugineus, incurvatus.

Angulus exterior acuminatus, fuscus.

135.

135. PAPILIO P. R. alis unicaudatis: ſupra cæruleis margine nigro; ſubtus nigro alboque ocellatis. *Syſt. Nat.* 483. *n.* 150. Thamyras.

Habitat in *Indiis*.

Corpus quartæ magnitudinis.

Antennæ nigræ.

Alæ omnes *ſupra* cæruleæ, nitidiſſimæ, integræ aut parum repandæ, margine circum peripheriam nigro.

— — *ſubtus* cinereæ.

Maculæ copioſæ, fuſcæ, rotundatæ, ſparſæ, annulo albo cinctæ.

Poſticæ deſinentes in caudam brevem, obtuſam, nigram.

Subtus fuſcæ ac viridi-ſericeæ verſus angulum ani, & Punctis 2 atris notatæ.

136.

Thespis. 136. PAPILIO P. R. alis ecaudatis cæruleis, subtus undique albo maculatis.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus statura P. Argi, sed dimidio minor.

Antennæ albo annulatæ clava lutescente.

Alæ *supra* omnes cæruleæ, immaculatæ, absque limbo nigro.

Margo ciliis albus, nigro interruptus.

-- *subtus* omnes fuscæ, Maculis albis, undique reticulatæ.

137.

137. PAPILIO P. R. alis rotundatis nigris concoloribus: primoribus fascia duplici fulva. *Syst. Nat.* 487. *n.* 185. Priassus.

Habitat in *Indiis*.

Corpus quartæ magnitudinis.

Antennæ clavatæ, acuminatæ.

Pedes flavescentes.

Alæ *Primores* concolores, nigræ.

Fascia in medio, transversalis, fulva.

Fascia minor, fulva, extra priorem.

Macula minor, fulva, cruciformis uniens priores duas fascias, descendens a latere exteriore fasciæ superioris ad medium inferioris fasciæ.

Posticæ concolores, nigræ, immaculatæ.

Lara. 138. PAPILIO P. R. alis integerrimis subteſtaceis: primoribus ſupra uniocellatis; poſticis ſupra biocellatis.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus 5:tæ ſ. 6:tæ magnitudinis ſ. P. Argi.

Alæ *Primores ſupra* fuſco-teſtaceæ, limbo exteriore magis fuſco.

Ocellus ad angulum poſticum niger, iride alba.

Margo ciliis cæruleis veſtitus.

-- -- *ſubtus* cinereæ.

Ocelli ad angulum poſticum duo, nigri iride alba.

Striga obſoleta, albida, repanda, transverſa, ante ocellos.

-- *Poſticæ ſupra* ſimiles Primoribus.

Ocelli ad angulum poſticum exacte ſimiles & oppoſiti ocellis alæ primoris.

-- -- *ſubtus* cinereæ.

Ocellus nullus.

139.

139. PAPILIO P. R. alis integerrimis ſupra fuſcis: ſubtus primoribus ocello; poſticis lineis transverſis undatis. *Syſt. Nat.* 483. *n.* 155. *Clerck. t.* 45. *f.* 3. Philoeles.

Habitat in *Indiis.*

Corpus magnitudine P. Argi.

Alæ *Primores ſupra* fuſcæ.

Faſcia albo-cæruleſcens, transverſa.

— — *ſubtus* fuſcæ.

Ocellus niger, iride griſea, pupilla alba, in medio alæ.

— *Poſticæ ſupra* fuſcæ.

Regio exterior albidà.

— — *ſubtus* Lineolæ transverſæ, undatæ, verſus apicem albicantes.

Timantes. 140. PAPILIO P. R. alis integerrimis fuſcis cæruleſcentibus; ſubtus fuſcis fulvo-ocellisque. *Syſt. Nat.* 483. *n.* 156.

Habitat in *Indiis*.

Corpus magnitudine & habitu P. Argi.

Alæ *ſupra* omnes immaculatæ, fuſcæ, ſ. ſubviolaceæ.

ſubtus omnes viridi-cæruleæ.

Lineæ 4 ſ. 5, fuſcæ, latæ transverſæ, per omnes alas.

Ocellus niger iride flava, ad apices primorum.

Ocelli aliquot, quorum nonnulli cæci ad marginem poſticum ſecundariarum.

141.

141 PAPILIO P. R. alis integerrimis fub- Athemon.
fuſcis: dico communi albis: fascia poſtica
dimidiata fuſca. *Syſt. Nat.* 484. *n.* 157.
Clerck. t. 37. *f.* 2 & *t.* 46. *f.* 3.

Habitat in *Indiis.*

Corpus magnitudine P. Argi.

Alæ omnes *ſupra* fuſcæ ſ. antice cæruleſcentes.

Diſcus communis albus.

Faſcia fuſca, brevis, transverſa, ad angulum ani in alis utrinque. Hæc in quibusdam tantum ſubtus, nec ſupra.

Maculæ 3, parvæ, marginales, ad apicem anticarum.

Cæruleus color in pagina inferiore interdum immiſcetur fuſco.

Caricæ. 142. PAPILIO P. R. alis integerrimis fulvis: disco communi albo, limbo cinereo ocellato. *Syst. Nat.* 484. *n.* 158. *Clerck, t.* 20. *f.* 2.

Merian. surin. 40. *t.* 40. *f.* 1. in Carica.

Habitat in *America.*

Corpus quintæ magnitudinis f. P. Argi.

Thorax albidus.

Antennæ tenuissimæ, clavatæ.

Pedes pallidi, parum albo vestiti.

Alæ simul explicatæ formant orbem dimidiatum, qui undique *cingitur* instar lineæ latæ fulvæ & extra hunc colorem *Margo* extimus cinereus, ocellis minutissimis instar punctorum.

Discus intra hos colores (ex omnibus alis simul) exacte semiorbicularis lacteæ albedinis.

143.

143. PAPILIO P. R. alis integris ferrugi- Metis.
neo-fuſcis: maculis fulvis ſparſis; poſticis ſubtus immaculatis.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus quintæ magnitudinis ſ. P. Argi.

Antennæ clavatæ, nigricantes, antice flavæ.

Pedes ſex, fuſci, ſubtus lutei.

Alæ *Priores* ſubconcolores, purpuraſcenti-nigræ, maculis 5 ſ. 6, fulvis, ſparſis, ſubdidymis.

— *Poſticæ ſupra* purpuraſcenti-nigræ Maculis fulvis; quorum 2 ſ. 3 in diſco, 7 ſ. 8 in arcum digeſtæ, intra marginem poſticum.

— — *ſubtus* immaculatæ, purpuraſcenti-fuſcæ.

Phereclas.

144. PAPILIO P. R. alis integerrimis utrinque atris: primoribus fascia lineari rubra. *Syst. Nat.* 484. *n.* 159. *Clerck. t.* 45. *f.* 4.

Habitat in *America.*

Corpus magnitudine P. Argi, atrum.

Antennæ nigræ, extus incrassatæ, apice subulatæ ut medius inter Papiliones & Phalænas.

Alæ *Primores* atræ *utrinque.*

Fascia transversalis ex fulvo rubra, æqualis, alas in medio transverse secat, sed non tangit.

-- *Posticæ* margine atræ, summo marginis apice albicantes.

VARIETAS *Maculis* aliquot rubris extra fasciam.

β *Alis Primoribus* Puncta alba sparsa.

Linea rubra longitudinalis brevis ad basin.

-- - *Posticis* Macula alba ovata magna disci.

145.

145. PAPILIO P. R. alis integerrimis utrinque atris: primoribus fascia lineari rubra: exterius luteo maculatis. *Clerck. t. 45. f. 5.* Peleus.

Habitat in *Indiis*.

Papilio hic similis P. Phereclo, sed Maculæ testaceæ sparsæ s. confluentes extra fasciam primorum ab utraque pagina.

Summa huic intercedit affinitas cum præcedenti Phereclo, *ut dubitem utrum aliter, quam solo sexu differat, imprimis cum non sit infrequens in Papilionum genere, quod alæ inferiores sint in sexu femineo magis maculatæ.*

Thero. 146. PAPILIO P. R. alis dentatis subbicaudatis nigricantibus, maculis fulvis; subtus maculis argenteis variis.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus quartæ magnitudinis, fuscum.

Antennæ subsiliformes, paululum versus exteriora crassiores.

Pedes sex, perfecti.

Alæ *Primores supra* nigricantes, ad basin pilis griseis vestitæ.

Maculæ in disco, fulvæ, octo: quarum anteriores duplo majores.

Margo exterior subsinuatus, albus, nigro-dentatus.

— — *subtus* fulvæ, sed postice nebulosæ.

Maculæ circiter XI nigræ; quarum tres ad marginem anteriorem papilla alba argentea; Duæ versus marginem in disco; Minutæ tres & tres confluentes versus nebulosam exteriorem partem alæ.

— *Posticæ supra* fuscæ.

Maculæ tres, in ordinem digestæ, fulvæ, versus posticam alæ.

Margo posticus dentatus, dentibus duobus versus angulum ani quadruplo majoribus.

— — *subtus* cinereo-nebulosæ.

Maculæ s. lituræ circiter X albæ, argenteæ, quarum lituræ versus marginem interiorem angustæ arcuatæ; sed duæ in medio disci majores: harum anterior linearis brevis; posterior maxima antice dilatata, postice hamata; plures lineares arcuatæ versus marginem interiorem.

147.

147. PAPILIO P. R. alis unidentatis nigricantibus disco fulvo; subtus purpurascentibus maculis argenteis. Thyra.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus magnitudine P. Argi, supra nigricans, subtus cinerascens.

Antennæ filiformi-clavatæ.

Pedes sex, perfecti.

Alæ *Primores supra* nigræ disco fulvo, quasi ex quatuor Maculis connato.

— — *subtus* testaceo-ferrugineæ disco magis fulvo.

Maculæ plurimæ, nigræ, sparsæ, inæquales: harum omnes margini anteriori propiores pupilla argentea elevata.

— *Posticæ supra* nigræ, disco fulvo latiore, quam in primoribus, ut margo niger solus postice terminet discum.

Margo posticus ad angulum ani uno dente exit.

— — *subtus* testaceo-ferrugineæ.

Maculæ & lituræ variæ, sparsæ, albo-subargenteæ; quarum mediæ majores magis confluentes; posticæ vero strigam referunt.

Thysbe. 148. PAPILIO P. R. alis denticulatis subunicaudatis fulvis nigro maculatis; posticis imprimis subtus striatis auroque maculatis.

Habitat ad *Cap. b. Spei.* Tulbagh.

Corpus quintæ magnitudinis, supra fuscum, subtus flavescens.

Antennæ subfiliformes, extrorsum paulo crassiores, rufescentes.

Pedes sex, perfecti.

Alæ *Primores supra* fulvæ, denticulatæ, ad basin tectæ villis cyaneis.

Maculæ circiter octo, nigræ, in disco.

Margo exterior latius niger.

-- - *subtus* fulvæ, versus exteriora striatæ.

Maculæ circiter duodecim, sparsæ, nigræ: quarum 4 s. 5 margini anteriori propiores pupilla albo-argentea elevantur.

-- *Posticæ supra* fulvæ, denticulatæ, basi cyaneæ.

Maculæ circiter septem, nigræ, sparsæ.

Margo posticus niger denticulatus: denticulo ani quadrupio majore.

-- . - *subtus* flavæ quasi fasciis duabus saturatius luteis; præterea valde striatæ versus posteriora.

Maculæ deauratæ, plurimæ (7 s. 8), quarum posteriores quasi ex duabus lineolis centlatæ.

149. PAPILIO P. R. alis integris disco fulvo nigro maculato; primoribus subtus argenteo-maculatis. Zeuxo.

Habitat ad *Cap. b. spei.* Tulbagh.

Corpus 6:næ magnitudinis & P. Argo dimidio minor, adeoque inter minutissimos Papiliones.

Alæ *Primores supra* nigræ disco lato fulvo, vel potius fulvæ, nitidæ margine undique lato nigro.

Maculæ nigræ, plures (9 circiter), sæpius connexæ, quadratæ.

-- - *subtus* cinerascentes, in disco fulvescentes.

Maculæ plurimæ (ultra 10 s. 12), nigræ, sparsæ; pupillis cæruleo-argentea corruscantes: exceptis 2 s. 3 versus marginem tenuiorem.

-- *Posticæ supra* ut in Primoribus.

-- - *subtus* cinereo-nebulosæ, immaculatæ.

150.

Lyſippus. 150. PAPILIO P. R. alis ſubangulatis utrinque atris: omnibus faſcia lineari rubra. *Syſt. Nat.* 484. *n.* 160. *Clerck. t.* 22. *f.* 2.

Habitat in *Indiis.*

Corpus quintæ magnitudinis ſ. P. Argi.

Antennæ nigræ.

Alæ *ſupra* omnes atræ.

Linea anguſta, transverſa, rubro-fulva, in medio ſecat alas tam primores quam poſticas.

-- *Poſticæ* poſtice in angulum obtuſum productæ.

-- - *ſubtus* omnes concolores, ſed Puncta pallida, ſparſa intra lineas fulvas.

9. PLEBEJI URBICOLÆ.

151. PAPILIO P. U. alis caudatis fuſcis maculis feneſtratis, antennis uncinatis. *Syſt. Nat.* 484. *n.* 163. *Clerck. t.* 42. *f.* 1, 2, 3. Proteus.

Merian. ſurin. 63. *t.* 63. *f.* 2.

Habitat in utraque *India.*

CORPUS quartæ magnitudinis ſ. P. Argi.

LINGVA ſpiralis, corpore longior.

ANTENNÆ clavatæ, apice ſubulatæ in acumen, quod reflectitur in uncum ſingulari nota.

Habitus Papilionis Commatis; convenit antennis ſingularibus cuſpidatis, ſed major colore diverſo.

ALÆ *Primores ſupra* fuſcæ.

Maculæ aliquot ſparſæ, hyalinæ ſ. nudæ pellucidæ.

-- - *ſubtus* nebuloſæ.

-- *Poſticæ ſupra* fuſcæ.

-- - *ſubtus* faſciis nigricantibus nebuloſæ.

VARIETATES hujus in Indiis pæne infinitæ:

α. Alis poſtici caudatis: Cauda longitudine fere alarum, ſubplumoſa.

β. Alis poſticis caudatis: Cauda longa alba.

γ. Alis ad baſin virescentibus cum corpore.

δ. Alis primoribus vix maculatis.

ε. Alis rotundatis: primoribus faſcia transverſali.

ζ. Alis rotundatis ſubteſtaceis, corpore craſſiore, puncto flavo in ſecundariis.

η. Alis ſubtus albo variegatis.

152.

Phidias. 152. PAPILIO P. U. alis rotundatis atris nitentibus margine albis, ore anoque rubris. *Syst. Nat.* 485. *n.* 164. *Clerck. t.* 44. *f.* 1, 2, 3, 4.

Pet. gaz. t. 43. *f.* 15. (mala) Phidippa luzon. aterrima, collo cauda extremitatibusque alarum aureis.

Habitat in *Luzonis.*

Corpus quartæ magnitudinis.

Antennæ clavatæ, nigræ, clava obtusa, parum recurva.

Pedes nigri.

Alæ *supra* omnes atræ, ex cæruleo & viridi parum nitentes.

subtus atræ.

Fascia alba, lata, in basi secundariarum, præsertim quæ ad primores adscendit.

Margo extimus posticarum albus.

Feminæ Alæ minores, ceterum similes.

Fascia nulla alba subtus.

Margo (intra inferiorum alarum marginem) albus linea coccinea.

Linea rubra ad basin ejusdem alæ.

Abdomen subtus maculis 4 rubris.

Varietas α. Alarum margine luteo.

β. Alarum secundariarum margine albo, introrsum rubro.

153.

153. PAPILIO P. U. alis rotundatis fuſcis baſi virescentibus; poſticis ſubtus faſcia lactea. *Syſt. Nat.* 485. *n.* 165. *Clerck. t.* 42. *f.* 4. Bixæ.

Merian. ſurin. t. 44. in Bixa.

β. *Pet. gaz.* 51. *t.* 32. *f.* 5. Papilionoides carolinıana fuſca, ſignatura aurea pellucida ſubtus albida.

Habitat in *America.*

CORPUS ferrugineum.

ALÆ *Primores ſupra* nigricantes, verſus baſin virescentes.

-- - *ſubtus* ſubfuſcæ, interdum baſi virescentes.

-- *Poſticæ* primoribus concolores.

-- *ſubtus* nigræ ſ. virescentes.

Faſcia lactea & fere nivea, lata, ovata, transverſa, in disco ante verſus baſin.

Videtur affinis duobus præcedentibus (Phidiæ & Proteo) ſed dejunt in exemplari Antennæ, forte uncinatæ.

Petiveri figura videtur hujus eſſe varietas.

154.

Polycletus. 154. PAPILIO P. U. alis ſubcaudatis viridi-fuſcis: primoribus macula alba; ſubtus argenteo punctatis. *Syſt. Nat.* 485. *n.* 166. *Clerck. t.* 17. *f.* 2.

Habitat in *Indiis.*

Corpus quartæ magnitudinis.

Alæ *Primores ſupra* fuſcæ, verſus baſin virides. Macula alba oblonga in medio.

-- - *ſubtus* cinereæ, latere interiore albæ. Maculæ fulvæ; numeroſæ, quadratæ, cinctæ margine nigro argenteoque.

-- *Poſticæ* fuſcæ. Poſtice angulatæ, vix caudatæ.

-- *ſubtus* concolores primoribus, ſed absque margine albo.

155. PAPILIO P. U. alis denticulatis nigris albo maculatis: basi supra cyaneis. Pitho.

Habitat ad *Cap. b. Spei.* Tulbagh.

Simillimus P. Malvæ colore magnitudine & omnibus.

Antennæ albo-annulatæ.

Alæ omnes *supra* nigricantes, versus basin cyaneæ.

-- *Primores supra* maculis s. potius punctis 3 s. 4, albis.

-- *Posticæ supra* ad marginem posticum 3 s. 4 ocellis obsoletis.

-- - *subtus* omnes albæ Maculis fuscis reticulatæ.

Margo posticus omnium albus nigro interruptus.

Spio. 156. PAPILIO P. U. alis integerrimis reverſis nigricantibus undique [illegible]ulatis.

Habitat ad *Cap. b. ſpei.* Tull.

Similis P. Tages, ſed dimidio minor & brevis.

Alæ *omnes ſupra* nigræ Maculis albis, [illegible] albi formibus, per totam paginam diſperſis.

-- - *ſubtus* ſimillimæ, ſed loco nigredinis fuſcæ.

Alæ reverſæ ſunt.

157

157. PAPILIO P. U. alis integerrimis ſubreverſis fuſcis: primoribus ſupra punctis quatuor albis ſparſis. Niſo.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Simillimus magnitudine, colore & omnibus P. Tages, ut forte ſola varietas.

P. *capenſis* in medio punctis 4, albis, ſparſis.

-- *europæus* atomis quibusdam albis adſperſus.

P. *capenſis* caret punctorum albidorum ordine ad marginem poſticum omnium alarum, ſed margo poſticus ciliis albidis eſt, quod non in *europæo*.

In *europæo* Maculæ primores ſubtus ad marginem craſſiorem puncto albo, & plurimis vix conſpicuis punctis albo in pagina interiore poſticarum, quæ deficiunt omnia in *capenſi*.

Protumnus. 158. PAPILIO P. U. alis integerrimis lutescentibus fusco-contaminatis, subtus cancscentibus nebulosis.

Habitat ad *Cap. b. spei.* Tulbagh.

Difficile hic determinatur, facie proxime accedit ad P. Comma, sed duplo major.

ANTENNÆ lineari-clavatæ.

PEDES sex, perfecti.

ALÆ *Primores supra* subtestaceæ, fusco passim obscuratæ.

— — *subtus* testaceæ Maculis, & versus posteriora fascia curva e Maculis nigris.

— *Posticæ supra* testaceæ, limbo fuscescente, & Macula una magna transversa.

— — *subtus* cano fuscoque nebulosæ.

SPHINX.

SPHINX.

1. LEGITIMÆ.

1. SPHINX alis angulatis: poſticis ocellatis. ocellata.
Syſt. Nat. 489. *n.* 1. *Fn. Suec.* 2. *n.* 1083.
Mouff. p. 91.
Jonſt. inſ. t. 8. *f.* 30. Papilio alius 30.
Gœd. belg. 3. *p.* 25. *t.* 0.
Liſt. gœd. 68. *f.* 24.
Raj. inſ. 142. *n.* 2. Phalæna major, capite craſſo, alis amplis: interioribus macula ophthalmoidea inſignitis.
Amiral. inſ. t. 1.
Merian. eur. t. 87.
Alb. angl. 8. *f.* 12. *d. e.*
Rœſel. 1. *phal.* 1. *p.* 1. *t.* 1.
Sultz. inſ. t. 15. *f.* 89.
Habitat in *Europæ* arboribus Pomiferis, Drupiferis, Salicibus.

Corpus mediæ magnitudinis.
Antennæ albæ, priſmatico-pectinatæ.
Thorax craſſus, cinereus, dorſo ferrugineo.
Abdomen cinereum.
Alæ ſuperiores pallido cinereo griſeo fuſcoque nebuloſæ.
-- *Primores ſupra* repandæ, valde dilatatæ angulo ani, margine poſtico ſubruſcæ.
-- -- *ſubtus* rubræ, cum faſcia cinerea.
-- *Poſticæ ſupra* purpureæ, adſcendentes angulo interiori prominulo.
Ocellus niger, pupilla cæruleſcente, magnus, verſus angulum ani ſitus.
-- -- *ſubtus* colore primorum ſupra, cum faſcia cinerea una alterave absque ocello; at primores ſubtus baſi rufeſcentes.

Populi. 2. SPHINX alis angulatis reverſis; poſticis baſi ferrugineis, anticis puncto albo. *Syſt. Nat.* 489. *n.* 2. *Fn. ſuec.* 2. *n.* 1084.

Fn. ſuec. 1. *n.* 810. Phalæna prismicornis ſpirilingvis, alis planiuſculis eroſis griſeis, antennis albis.

Ræſ. app. 187. *t.* 30.

De Geer. inſ. 1. *t.* 8. *f.* 5.

Ammiral. inſ. t. 10.

Habitat in *Europæ* Populo alba.

Corpus tertiæ magnitudinis, cinereum.

Antennæ albæ, ſubtus ferrugineæ.

Abdomen caneſcens, absque cingulis.

Alæ e cinereo & griſeo nebuloſæ ſ. obſolete faſciatæ. Omnes dentatæ ſ. repandæ & poſticæ extra primores expanſæ. Punctum album in centro primorum.

Poſticæ ſupra cinereæ, baſi ferrugineæ.

ſubtus omnes cinereæ faſcia obſoleta, palleſcente.

3.

3. SPHINX alis angulatis: ſuperioribus griſeo-faſciatis; poſticis teſtaceis. *Syſt. Nat.* 489. *n.* 3. *Fn. ſuec.* 2. *n.* 1085. Tiliæ.

Alb. inſ. t. 10.

Merian. eur. 38. *t.* 74.

Friſch. inſ. 7. *t.* 2.

Rœſel. inſ. 1. *phal. t.* 2.

Habitat in *Europæ* Tilia.

Corpus quartæ magnitudinis.

Caput ſupra griſeum.

Antennæ ſupra albæ, ſubtus ferrugineæ, ſcalares

Thoracis latera griſea ſ. vireſcentia.

Abdomen cinereum absque faſciis.

Pedes anteriores rubicundi.

Alæ *ſupra* omnes pallidæ, baſi apicèque ſubgriſeæ. poſtice ſinuatæ.

-- *Primores ſupra* in medio Faſcia faſceſcente, angulata, interrupta, unde Maculæ duæ.
Apices antice pallidiores.

-- *Poſticæ ſupra* flaveſcentes; angulus ani griſeus

-- - *ſubtus* omnes flaveſcentes faſcia pallidiore.
Margo ſecundariarum poſtice crocea linea exaratus.

Ozypete. 4. SPHINX alis angulatis nebulosis; posticis margine baseos posteriore albis. *Syst. Nat.* 489. *n.* 4.

Habitat in *Indiis*.

Corpus Asili magnitudine, nebulosum.

Alæ omnes griseo-fuscæ s. nebulosæ,

— *Posticæ supra*, pone basin, albæ.

5.

5. SPHINX alis integris: posticis fusco fasciatis margine postico albo punctatis, abdomine rubro cingulis atris. *Syst. Nat.* 490. *n.* 6. Convolvuli.

Gœd. inf. 3. *t.* V.

Merian. europ. 39. *t.* 75.

Rœs. inf. 1. *phal.* 1. *t.* 7.

Wilk. pap. 10. *t.* 1. *B.* 2.

Habitat in *Europæ* Convolvulis.

Corpus inter congeneres Sphinges facile maximum, cinereum capite, thorace, pectore, abdomine, alis, pedibus.

Frons albicans.

Antennæ cinereæ, scalares, strictæ.

Thorax antice a tergo gerit arcus 2, nigros, recurvatos.

Abdomen supra rubrum, basi fulvum.
Fascia dorsalis longitudinalis cinerea.
Cingula 6, atra, basi segmentorum albida.

Alæ omnes fuliginoso-cinereæ Punctis alternis, albis, in margine posteriore.

-- *Primores supra* striis nigris, nonnullis, vagis, longitudinalibus.

-- *Posticæ* cinereæ.
Fasciæ tres, fuscæ.

-- *subtus* omnes cinereæ.

carolina. 6. SPHINX alis integris: omnibus margine poſtico albo-punctatis, abdomine ocellis ſex parium fulvis.

Brown. jam. 438. *t.* 43. *f.* 17.

Habitat in *Carolina*, Jamaica.

Corpus mediæ magnitudinis ſ. ſtatura S. Convolvuli.

Caput cinereum.

Antennæ albæ.

Thorax cinereus.

Abdomen cinereum.

Ocelli 6 parium lutei, iride nigra, in dorſo abdominis, ſcilicet in ſingulo ſegmento duo, locati.

Puncta alba, trium parium, in medio dorſo, inter ſegmentorum ordines.

Tibiæ anticæ barbatæ, introrſum calloſæ.

Alæ *Primores ſupra* cinereo-nebuloſæ; punctum album in medio.

-- - *ſubtus* cinereæ.

Margo poſticus punctis ſeptem albis.

-- *Poſticæ ſupra* fuſco-cinereæ.

Faſcia una alterave albo-cinerea.

-- - *ſubtus* cinereæ.

Lineæ duæ, undulatæ, transverſæ.

Margo poſticus albus

7. SPHINX alis integris: poſticis incarnatis faſciis nigris, abdomine rubro: cingulis nigris. *Syſt. Nat.* 490. *n.* 7. *Fn. ſuec.* 2. *n.* 1087. Liguſtri.

Fn. ſuec. 1. *n* 809. Phalæna prismicornis ſpirilingvis fuſca, alis inferioribus abdomineque faſciis transverſis rubris.

Merian. europ. t. 124.

De Geer inſ. 1. *p. t.* 1. *f.* 6.

Ræſ. app. 1. *p.* 25. *t.* 5.

Harriſ. inſ. t. 2. *f. a-f.*

Habitat in *Europæ* Syringa, Liguſtro.

Corpus mediæ magnitudinis.

Antennæ hinc albæ, inde nigræ, quaſi ſcala exaratæ.

Thorax apice obtuſo margine quaſi prominulo albido, ſupra niger lateribus pallidis.

Abdomen rubrum.

Faſcia dorſalis longitudinalis cinerea, linea nigra interrupta.

Cingula 6, nigra.

Subtus canum ſtriis 3 nigricantibus.

Alæ *Primores ſupra* fuſcæ ſtriis nigris longitudinalibus & lunula nigra lineari in medio.

-- -- *ſubtus* griſeæ.

-- *Poſticæ ſupra* incarnatæ, faſciis 3 nigris.

— - *ſubtus* cinereæ, faſcia nigra.

8.

Atropos. 8. SPHINX alis integris: posticis luteis fasciis fuscis, abdomine luteo maculato: cingulis nigris. *Syst. Nat.* 490. *n.* 8. *Amœn. acad.* 3. *p.* 321.

Alb. inf. t. 6.

Reaum. inf. 1. *p.* 342. *t.* 14.

Wilk. inf. 9. *t.* 1. *B.* 1.

Ræs. inf. 3. *t.* 1. *f.* 2.

Sultz. inf. t. 15. *f.* 88.

Habitat in *Europæ* australis Jasmino. Ex *Ægypto* duplo major. D. Hasselquist.

Corpus primæ magnitudinis.

Caput nigrum.

Antennæ fuscæ, vix thoracis longitudine, atræ, apice acuminatæ, recurvæ, supra apicem lateralem albæ.

Thorax niger, villosus; dorsi macula magna flava: punctis duobus, nigris.

Abdomen luteum, cingulis atris lineaque dorsali fusca.

Alæ *Primores supra* obscure cinereæ, fusco-nebulosæ s. fuliginosæ.

Punctum pallidum in medio.

-- - *subtus* testaceæ, extrorsum nigricantes.

-- *Posticæ supra* luteæ.

Fascia dimidiata, fusca, in medio Alæ.

Fascia ex lineis nodosis fuscis, versus marginem posticum.

-- - *subtus* similes paginæ superiori.

9.

9. SPHINX alis integris cinerascentibus immaculatis: paginis occultatis sanguineis, abdomine cinerascente. capensis.

Habitat ad *Cap. b. Spei.* Tulbagh.

Corpus magnitudine S. Ligustri, cinerascens.

Antennæ subfiliformes, rufescentes, apice acuto uncinato. Superciliaris regio albida.

Abdomen cinerascens, immaculatum, lævigatum, acutiuscului.

Pedes cinerascentes.

Alæ *Primores supra* canescentes, immaculatæ.

-- - *subtus* rubræ, sed limbo exteriore cinereo, & margine tenui; ad basin vero albo.

-- *Posticæ supra* rubræ versus basin, extrorsum albæ.

-- - *subtus* cinerascentes, vix rubicundæ.

10.

Caricæ. 10. SPHINX alis integris: posticis supra luteis, abdomine cinereo: cingulis nigris. *Syst. Nat.* 491. *n.* 9. *Clerck.* *t.* 47. *f.* 1.

Merian. surin. 64. *t.* 64. *f.* 1. 2. in Carica.

Habitat in *America.*

CAPUT nigricans.

ANTENNÆ albæ.

THORAX nigricans, lineis longis atris.

ABDOMEN cinereum.
Segmenta transversa nigra.
Linea dorsalis nigra.

PEDES fusci.

TIBIÆ anticæ barbatæ Callo laterali glabro.

ALÆ *Primores supra* fuscæ; venis fasciatis, atris, undulatis nebulosæ.

— — *subtus* fusco-cinereæ.
Versus marginem exteriorem fuscæ s. nigro striatæ.

— *Posticæ supra* luteæ.
Versus marginem exteriorem fuscæ s. nigro striatæ.

— — *subtus* cinereo-nebulosæ.
Discus versus marginem interiorem luteus.

11. SPHINX alis integris: posticis rufis margine crassiore nigris, abdomine pallido: cingulis atris. *Syst. Nat.* 491. *n.* 11. Ello.

Habitat in *India.*

Corpus mediæ magnitudinis.

Abdomen pallidum s. lividum.

Cingula 6, atra, in medio linea nigra duplici longitudinali intersecta.

Alæ *Primores supra* cinereæ, subtus lividæ.

-- *Posticæ* rufæ, Margine postico solo nigricante lato.

12.

Labrufcæ. 12. SPHINX alis fubfufcis: primoribus fubtus puncto albo, abdomine lateribus punctis V albis. *Syſt. Nat.* 491. *n.* 12. *Clerck. t.* 47. *f.* 3.

Merian. ſurin. t. 34. in Vite.

Habitat in *America.*

Corpus mediæ magnitudinis, flaveſcens capite, thorace, abdomine, alis ſuperioribus, pedibus.

Antennæ pallidæ.

Pedes ferruginei.

Tibiæ anteriores barbatæ, latere interiore veluti grano oblongo glabro notatæ.

Alæ *Primores ſupra* in medio magis fuſcæ, intra triangulum.

Puncta 5 f. 6, fuſca, intra marginem exteriorem.

-- - *ſubtus* in medio fuſcæ puncto albicante.

Poſticæ ſupra cinereæ.

Diſcus ex nigro albidoque varius.

Macula rubra verſus marginem interiorem.

-- - *ſubtus* Lineæ 2, viteſcentes, undatæ, quæ ducunt etiam per primores.

13.

13. SPHINX alis fuſco-nebuloſis: poſticis angulo ani albis. *Syſt. Nat.* 491. *n.* 13. *Clerck. t.* 49. *f.* 2. Ficus.

Merian. ſurin. 33. *t.* 33.

Habitat in *America*.

Corpus inter Sphinges majus, totum teſtaceum.

Alæ *Primores ſupra* cinereæ ſ. cervinæ, fuſco-nebuloſæ, verſus apicem antrorſum pallidiores. Punctum fuſcum, rotundum, in medio alæ.

-- *Poſticæ ſupra* cervinæ.
Faſciæ 2, fuſcæ.
Angulus ani villis albis puncti inſtar notatus.

-- - *ſubtus* omnes teſtaceæ ſ. cervinæ.
Linea transverſalis obſoleta ex Punctis fuſcis.

Vitis. 14. SPHINX alis cinereis fuſco variis: poſticis margine tenuiore ſanguineis. *Syſt. Nat.* 491. *n.* 14.

Merian. ſurin. 47. *t.* 47. *f.* 1. in Vite.

Habitat in *America*.

Corpus mediocris magnitudinis.

Caput thoraci concolor.

Antennæ albæ.

Thorax cinereus, linea longitudinali nigricante.

Pedes extus albi.

Alæ *Primores ſupra* cinereo fuſcæ:
Linea pallida, longitudinalis & transverſalis.
Punctum nigrum, in medio alæ.

-- *Poſticæ ſupra* cinereæ.
Faſcia nigricans verſus marginem poſticum.
Macula nigra in diſco.
Margo anterior albus; interior Macula ſanguinea.

-- -- *ſubtus* omnes cinereæ.

15.

15. SPHINX alis integris: fasciis purpureis variis; inferioribus rubris basi atris. *Syst. Nat.* 491. *n.* 15. *Fn. suec.* 2. *n.* 1089. Elpenor.

Fn. svec. 1. 811. Phalæna prismicornis spirilingvis, alis viridi purpureoque variis.

Pet. gaz. t. 40. *f.* 11. 12. 17.

Gœd. belg. 3. *p.* 47. *t.* 7.

List. gœd. 73. *f.* 26.

Merian. europ. 2. *p.* 23. *t.* 73.

Alb. ins. t. 9. *f.* 13.

Wilk. ins. 11. *t.* 1. *B.* 7.

Rœs. 1. *phal.* 1. *p.* 25. *t.* 4.

De Geer 1. *t.* 9. *f.* 8. 9.

Frisch. germ. 13. *t.* 4. *f.* 2.

Harris ins. 14. *t.* 7. *f. a-R.*

Habitat in *Europæ* Vite, Epilobio, Impatiente.

Corpus quartæ magnitudinis, pulcherrimis coloribus, nitidum, sangvineum.

Antennæ albidæ.

Thorax pallidus lineis quatuor, longitudinalibus, arcuatis, rubris.

Pectus saturatius.

Abdomen rubrum linea dorsali rubra juxta quam utrinque flavescens. Puncta alba ad latera.

Alæ *Primores supra* flavescentes fasciis duabus obliquis purpurascentibus puncto centrali albo.

Margo posticus late purpurascens.

-- - *subtus* flavæ margine posteriore sanguineo.

-- *Posticæ* rubræ, basi nigricantes.

Margo posticus albus.

-- - *subtus* omnes flavæ, margine postico late rubræ.

Euphorbiæ. 16. SPHINX alis integris fuſcis: vitta ſuperioribus flava; inferioribus purpuraſcente. *Syſt. Nat.* 492. *n.* 17. *Fn. ſuec.* 2. *p.* 1086.

Fn. ſuec. 1. 1356.

Friſch. germ. 2. *p.* 43. *t.* 11.

Rœſel. 1. *phal. p.* 17. *t.* 3.

De Geer inſ. 1. *t.* 8. *f.* 6. 8. 9. 11.

Habitat in Galio, Euphorbia *Europæ* uſque in *Cap. b. ſpei.*

Corpus quartæ magnitudinis, nitidum, lævc, griſeum.

Antennæ griſeæ aut albæ.

Thoracis latera linea alba a pectore diſtincta.

Abdomen griſeum, ſegmentis ſubtus & lateribus margine albis.

Punctum ſæpe album a tergo, in ſingulo ſegmento.

Segmenta 2, ad baſin, nigra, albo interſtincta.

Alæ *Primores ſupra* fuſcæ.

Faſcia longitudinalis pallida, antrorſum ſinuata.

Margo interior albus.

-- - *ſubtus* rufæ Macula nigricante.

-- *Poſticæ* antice nigræ, poſtice ſanguineæ faſcia nigra.

Margo poſticus pallidus.

-- - *ſubtus* rufæ.

17.

17. SPHINX alis integris: primoribus ſupra griſeis; poſticis rubris baſi margineque atris. *Syſt. Nat.* 491. *n.* 18. Alecto.

Habitat in *India*.

Corpus tertiæ magnitudinis.

Antennæ hinc rufæ, inde albicantes.

Thorax dorſo griſeus, pectore rufus, lateribus linea alba.

Abdomen alis primoribus ſupra concolor.

Alæ *ſubtus* omnes rufæ ſ. fulvo-rubræ.

— *Primores ſupra* griſeæ cineraſcentes.
Linea longitudinalis ſaturatior.

— *Poſticæ ſupra* ruberrimæ, baſi atræ.
Linea marginalis poſtice fuſca.

Megæra. 18. SPHINX alis viridibus: posticis fulvis fusco maculatis. *Syst. Nat.* 492. *n.* 19. *Clerck. t.* 47. *f.* 2.

Habitat in *India*.

Corpus mediocris magnitudinis, viride.

Alæ *Primores supra* virides.
Macula fusca versus angulum ani.
-- - *subtus* virides.
Dimidium alæ basin versus luteum.

-- *Posticæ supra* luteæ.
Macula nigricans in medio.
Margo posticus ferrugineus.
-- - *subtus* luteæ cinereo-nebulosæ.

19.

19. SPHINX alis primoribus cinerascentibus vitta pallida; posticis supra nigris basi rubris. *Syst. Nat.* 492. *n.* 21. Tisiphone.

Habitat in *Indiis*.

Corpus Asilo minus, griseum.

Antennæ subtus albæ.

Abdomen dorso characteribus albis paribus.

Alæ *Primores supra* cinerascentes.

Fascia pallida, linearis, longitudinalis.

— *Posticæ supra* nigræ, basi rubræ.

Lineæ 6 incarnatæ, obtusæ, parallele versus marginem exteriorem ductæ.

Thyelia. 20. SPHINX alis ferrugineis, vitta nigricante. *Syſt. Nat.* 492. *n.* 22. *Clerck. t.* 46. *f.* 4.

Habitat in *Indiis.*

Corpus magnitudine Aſili.

Antennæ griſeæ.

Thorax lineis longitudinalibus fuſcis.

Abdomen griſeum, lineis aliquot fuſcis longitudinalibus.

Subtus flavum.

Pedes flaveſcentes, Tibiis barbatis intus calloſis.

Alæ *Primores ſupra* ferrugineæ.

Linea longitudinalis pallida cum nigra ei ſuperinducta.

-- - *ſubtus* teſtaceo-luteæ. Lineis 3 longitudinalibus.

-- *Poſticæ ſupra* pallido-fuſcæ.

-- - *ſubtus* flaveſcentes Lineis fuſcis longitudinalibus.

2.

2. BARBATÆ.

21. SPHINX abdomine barbato: segmento tertio niveo. *Syst. Nat.* 493. *n.* 23. Tantalus.

Habitat in *Indiis*.

Corpus magnitudine Crabronis, pallido-fuscum.

Pectus albicans.

Abdominis segmentum tertium, a tergo niveum.

Spiracula s. Puncta ad latera abdominis subtus utrinque 4, oblonga.

Alæ omnes fuscescentes s. ex pallido fuscæ absque characteribus vel notis propriis.

3. ADSCITÆ.

Caffra. 22. SPHINX alis ſuperioribus fuſco-cinereis, punctis quinque ſanguineis, inferioribus rubris.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus S. Filipendulæ dimidio minus.

Antennæ longitudine dimidii corporis, ſubclavatæ, atro-cæruleſcentes.

Caput nigrum. *Lingua* ſpiralis. *Os* ſanguineum. Punctum ſanguineum ante & pone oculos.

Thorax niger punctis utrinque duobus ſanguineis.

Abdomen fuſcum, ſegmentis margine rubris.

Pedes fuſci, ſubtus rubeſcentes.

Alæ *ſuperiores* fuſco-caneſcentes punctis 5 ſanguineis: primo ad baſin alæ e rotundo in lineolam elongato; reliquis rotundis alternis, at punctum tertium transverſo-oblongiuſculum.

— *inferiores* ſanguineæ, limbo poſtico nigro.

23. SPHINX viridis, alis punctis feneſtratis: ſuperioribus ſex; inferioribus duobus, abdomine cingulis ſanguineis. Cerbera.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus cæruleum ſive cyaneum ſtatura et magnitudine S. Phegeæ & Creuſæ, inter quas media.

Antennæ nigræ, apice ſubtus albæ.

Thorax ad latera puncto ſanguineo.

Abdomen ſupra lineola rubra transverſa ad baſin, & 3 transverſis rubris ſ. ſanguineis in medio.

Tibiæ poſticæ apice annulo albo.

Alæ cyaneæ, maculis ſ punctis feneſtratis: ſuperiores 1, 2, 3; inferiores 2: altera minore verſus baſin.

Phegea. 24. SPHINX viridi-atra, alis punctis fenestratis: superiorum sex, inferiorum duobus, abdomine cingulo luteo. *Syst. Nat.* 494. *n.* 33.

Habitat in *Syria* & *Arabia*. Hasselquist.

Corpus viridi-atrum, habitu & omnibus S. Filipendulæ.

Caput, Thorax, Pedes & omnia subtus nigra.

Antennæ filiformes, supra apice albicantes.

Abdomen nigro-cæruleſcens cingulo ex uno segmento flavo, quod subtus interruptum, & insuper ad basin rudimentum cinguli lutei.

Alæ nigricantes: *Primores* Maculis 1, 2, 3, albis, pellucidis: *Posticæ* parvæ, Maculis duabus albis, altera minore versus basin.

25. SPHINX nigra, alis maculis feneſtratis, abdominis baſi viridi: ſegmentorum marginibus rubris. *Syſt. Nat.* 494. *n.* 34. *Clerck. t.* 46. *f.* 5. Creuſa.

Habitat - - -

Corpus magnitudine Ph. Filipendulæ.

Antennæ nigræ, filiformes in medio craſſiores, ut Sphingis Filipendulæ, nigræ.

Thorax niger, pectore albo.

Abdomen teretiuſculum, nigrum, baſi viride, ſegmentorum marginibus rubris.

Pedes fuſci.

Alæ *Primores* nigræ oblongæ, Maculis feneſtratis 1, 2, 3: Macula una parva ad baſin, dein ſecunda, tum tertia ſ. quarta in medio.

-- *Poſticæ* nigræ, oblongæ, duplo minores.

Macula una ſ. gemina ad baſin.

Maculæ binæ coalitæ in medio.

PHA-

PHALÆNA.

Atlas. 1. PHALÆNA Bombyx clingvis, alis patentibus falcatis luteo variis macula feneſtrata: ſuperioribus ſesqui altera. *Syſt. Nat.* 495. *n.* 1. *Vincent. muſ.* 6. Papilio nocturnus amboinenſis vulgo Atlas hyalinus & marmoratus. *Pet. gaz. t.* 8. *f.* 7. Phalæna plumata maxima. *Muſ. petrop.* 691. *n.* 356. Papilio maxima ſurinamenſis hyalina, ſingulis alis vitro moſcovitico ſimili macula inſignitis. *Merian. ſurin.* 52. *t.* 52.

Habitat in *Indiæ* Utriusque Citris folliculum ex ſerico tenaciſſimo conficiens.

Corpus primæ magnitudinis, ſpecioſiſſimum, rubrum ſ. fulvum.

Antennæ pectinatæ utrinque duplici ſerie, flaveſcentes.

Alæ *Primores* concolores, extus falcatæ.

Diſcus ferrugineus, æqualis, in quo:

Feneſtra (Macula nuda pellucida) alba, trigona, atro margine cincta.

Feneſtra alia minima, ovato-lanceolata, exterior, cincta margine nigro.

Baſis alæ ferrugineo-griſea.

Exterior regio alæ fulva ex ferrugineo, atomis flavis adſperſo.

Faſcia linearis, ferruginea, flexuoſa, intus alba, extus cinerea, diſtingvit Diſcum ab exteriore regione.

Apex alæ flavus, pictus Linea retrofracta, nivea & extimo apice fulva, nec Linea ferruginea longitudinali. Hic apex non planus, ſed varicoſus, præſertim ſubtus, ad apicem ſemiocellatus.

Margo exterior glaucus, linea nigra repanda.

Poſticæ concolores.

Diſcus ferrugineus.

Feneſtra trigona, nigro cincta.

Exterior pars alæ ſimilis primoribus.

Puncta nigra, majuſcula, intra Lineam nigram marginis exterioris.

2.

2. PHALÆNA Bombyx elingvis, alis patentibus ſubfalcatis luteo-variis: macula feneſtrata ſolitaria. *Syſt. Nat.* 495. *n.* 2. Heſperus.

Merian. ſurin. 65. *t.* 65.

Habitat in *Citro* Americes.

Differt a præcedente, quod

1. Corpus flaveſcens, nec fulvum.
2. Collum cinctum linea alba.
3. Feneſtra minor deeſt in ala primore.
4. Feneſtræ vix manifeſto margine nigro cinctæ.
5. Feneſtræ apice intrant exteriorem regionem alæ.
6. Color pallidior alarum flaveſcens, nec ferrugineus.
7. Alæ primores minus falcatæ.

Cecropia. 3. PHALÆNA Bombyx clingvis, alis patulis ſubfalcatis griſeis: faſcia fulva, ſuperioribus ocello ſubfeneſtrato ferrugineo. *Syſt. Nat.* 496. *n.* 3. *Clerck. t.* 49. *f.* 1.

Catesb. car. 2. *p.* 86. *t.* 86. (non optima).

Habitat in *America* ſeptentrionali. P. Kalm.

Corpus primæ ſ. ſecundæ magnitudinis, ſpecioſiſſimum.

Habitus, Magnitudo, Colores faciunt hanc præcedenti valde affinem, præſertim Alarum apices anteriores colore & ſtructura ſingulares, at maculæ alarum diverſæ, nec perfecte feneſtratæ.

Corpus totum fulvum ſ. ferrugineum. *Collare* album.

Abdominis ſegmenta 5, nigra, margine albo: Latera alba Punctis 5, fulvis ſ. ferrugineis.

Alæ *Primores* ſubfalcatæ, concolores, griſeæ fundo fuſco, atomis canis adſperſo.

Faſcia transverſa, ſubfulva.

Ocellus lunatus, ferrugineus margine nigro; diſco lunato, albo, in medio regionis interioris alæ.

Margo exterior glaucus Linea repanda, nigra.

Ocellus ater iride ſubcærulea, verſus apicem regionis exterioris.

Apex alæ puculatus, linea fulva variegatus, colore incarnato-purpureo.

— *Poſticæ* griſeæ.

Faſcia fulva, transverſa, introrſum alba.

Macula ocellaris, lunata ſ. reniformis, ferruginea, diſco albo margine nigro.

Margo poſticus linea & maculis fuſcis.

4.

4. PHALÆNA Bombyx elingvis flava, alis parulis falcatis concoloribus ocello feneſtratis. *Syſt. Nat.* 496. *n.* 4. Paphia.

Catesb. car. 2. *p.* 91. *t.* 91. Phalæna ingens caroliniana oculata e luteo fuſca lineis dilute purpureis inſignita.

Pet. gaz. t. 29. *f.* 3. Phalæna guineenſis flava perelegans & pulchre oculata?

Rumph. herb. 3. *t.* 75.

Habitat in *America* ſeptentrionali.

Corpus primæ magnitudinis.

Alæ *Primores* extrorſum falcatæ, teſtaceo-flaveſcentes, antice coſta lata cineraſcente.

Extrorſum Faſcia albido-flaveſcens.

Ocellus albus diſco griſeo, iride fuſca, pupilla feneſtrali vitrea, in medio alæ.

Limbus teſtaceus, ſtriga atro-violacea diſtinctus.

Ante apicem Macula marginalis fuſca, obſoleta, puculata.

-- *Poſticæ ſupra* luteæ, rotundatæ, integerrimæ.

Ocellus Primoris ſimilis in medio.

Poſtice pallidiores verſus marginem & obſolete undulatæ.

-- - *ſubtus* luteo ferrugineo incarnatæ, vix manifeſte undatæ Ocello ut in pagina ſuperiore.

Obſ. Ocelli utriusque alæ in Mare *oblongi*, *in* Femina *orbiculati*, *quorum qui in alis poſticis cincti nigredine violacea.*

Luna. 5. PHALÆNA Bombyx elingvis, alis patulis ſubfalcatis caudatis flavi-virentibus concoloribus, ocello diſci lunato. *Syſt. Nat.* 496. *n.* 5. *Clerck. t.* 52. *f.* 1.

Pet. gaz. t. 14. *f.* 5. Phalæna plumata mariana caudata vireſcens oculata.

- *muſ.* 69. *n.* 733. Phalæna plumata caudata caroliniana vireſcens oculata.

Catesb. car. 2. *p.* 84. *t.* 84.

Habitat in *America* ſeptentrionali. P. Kalm.

Corpus ſecundæ magnitudinis.

Antennæ lanceolatæ, pectinatæ, griſeæ.

Abdomen, Thorax, Caput hirſuta albida, at a tergo inter alas ferrugineus eſt Thorax.

Pedes rufo-ferruginei.

Alæ omnes viridi-flaveſcentes, concolores.

Primores margine antico craſſo, rufeſcente.

Poſticæ angulo ani elongato, longitudine alæ.

Ocellus quaſi ſemiclauſus, ferrugineus margine antico nigro, in medio alæ.

6.

6. PHALÆNA Noctua ſpirilingvis lævis, alis patulis ſubfalcatis caudatis fuſco luteoque undatis, ocellis caudalibus ſubternis. *Syſt. Nat.* 508. *n.* 64. *Clerck. t.* 52. *f.* 2. Lunus.

Habitat in *Indiis.*

Antennæ filiformes.

Alæ *ſupra* omnes fuſcæ, ſtriatæ venis repandis reticulatis flaveſcentibus, ſed poſticæ verſus caudam magis ferrugineæ.

Ocellus niger, iride lutea nigraque, ad angulum ani.

Cauda alæ oblonga, extrorſum dilatato-ovata, notata Ocellis duobus.

Ocellus niger, iride lutea, puculatus, in medio caudæ.

Ocellus minor, ad latus dilatatæ caudæ.

-- *ſubtus* omnes teſtaceæ ſ. pallido flavæ, parum fuſco nebuloſæ.

Feneſtra. 7. PHALÆNA Bombyx ſpirilingvis, alis patulis concolorlbus flavis: ſuperioribus duplici; inferioribus ſimplici feneſtra. *Syſt. Nat.* 505. *n.* 41. *Clerck. t.* 55. *f.* 1.

Habitat in *Indiis.*

Corpus quartæ magnitudinis, nigro & albo varium.

Capitis Palpi 2, nigri, adſcendentes, baſi antice albi.

Antennæ nigræ, pectinatæ.

Alæ utrinque concolores, integerrimæ.

-- *Primores* flavæ quoad marginem.

Macula duplex feneſtrata maximam diſci partem occupat; harum baſi propior major, vaſe triplici ramo: Superior brevior vaſe triplici longitudinali.

-- *Poſticæ* totæ albæ, margine poſtico villoſo.

8.

8. PHALÆNA Bombyx ſpirilingvis, alis perſpicua. patulis fuſcis: ſuperioribus faſcia feneſtrata brevi. *Syſt. Nat.* 505. *n.* 42.

Habitat in *Indiis*.

Corpus magnitudine Ph. Jacobeæ.

Antennæ pectinatæ, longæ, nigræ, valde acuminatæ.

Alæ *Primores* utrinque fuſcæ.

Faſcia feneſtrata ſ. nuda, transverſa, verſus apicem, brevis quæ non attingit margines.

— *Poſticæ* in diverſo ſexu

♂. ſupra fuſcæ latere occultato cæruleo; ſubtus flavæ margine poſtico fuſcæ.

♀. ſupra fuſcæ faſcia obliqua flava; ſubtus concolores.

odora. 9. PHALÆNA Bombyx ſpirilingvis, alis patentibus crenatis nebuloſis: ſuperioribus ocello unico; inferioribus ſesquialtero. *Syſt. Nat.* 505. *n.* 43. *Clerck. t.* 50. *f.* 1.

Sloan. jam. 2. *t.* 236. *f* 13. 14. Papilio maximus odoratus oculatus, alis utrinque e fuſco-purpureis: lineis undatis fuſcis variegatis.

Habitat in *Jamaica.*

Corpus primæ magnitudinis, hirſutum, cinereum.

Alæ *ſupra* omnes ſimul griſeæ, fuſco-nebuloſæ.

Faſcia cineraſcens, transverſa, in medio.

Macula ocellaris, nigra, reniformis, margine ferrugineo, in medio primorum inter faſciam & baſin.

Ocellus magnus annulo nigro repando: pupilla duplici: altera nigra, altera griſea, ad angulum poſticum ſecundariarum.

Puncta triangularia, pallida, intra marginem.

— *ſubtus* alæ ferrugineæ.

Faſcia linearis, obſoleta, una alterave, transverſa.

Punctum fuſcum, in medio primoris.

Puncta 8, ſagittata, intra marginem primorum; itidem in poſticis, ſed duplici ordine.

10.

10. PHALÆNA Bombyx ſpirilingvis, lutea, alis patulis concoloribus apice maculisque violaceis: ſuperioribus extus albo ſubfaſciatis. *Syſt. Nat.* 505. *n.* 44. militaris.

Roeſ. inſ. 4. *t.* 6. *f.* 3.

Habitat in *Aſia.*

Corpus tertiæ magnitudinis, flavum.

Antennæ nigræ, anguſtæ, pectinatæ.

Caput flavum, ocellis nigris; linea rubra inter oculos.

Thorax flavus faſciis duabus, nigris.

Alæ *Primores* concolores; verſus baſin flavæ, nigro-maculatæ.

-- *Poſticæ* flavæ, nigro-maculatæ; maculis verſus exteriora confluentibus.

Pedes pallidi, cæruleſcentes.

retorta. 11. PHALÆNA alis patulis, pallido-nebulosis: primoribus arcu nigro basi nodoso; inferioribus fascia alba.

Habitat in *Indiis*.

Corpus mediæ magnitudinis.

Antennæ - - - - - -

Thorax subtus rufus.

Alæ *Primores supra* pallidæ.

Fasciæ 3, fuscæ, lineares, undatæ.

Margo fuscus, latus, lineis 2 distinctus & aliis 2 undatus.

Arcus ater, linearis, extrorsum curvatus, basi Macula nigra rotunda auctus, in medio disci.

-- *Posticæ supra* fusco-nebulosæ.

Fascia linearis alba.

-- - *subtus* omnes ferrugineæ s. rufescentes.

Lineæ fuscæ, transversæ, undatæ.

Punctum fuscum, ad basin.

Puncta minima, intra marginem.

12.

12. PHALÆNA Noctua elingvis, alis patulis concoloribus albidis nigro-reticulatis nebulosisque. *Syst. Nat.* 508. *n.* 59. *Clerck. t.* 51. *f.* 1. Strix.

Merian. surin. 20. *t.* 20. (sed nec Alas dentatas, nec lingvam observo).

Habitat in *America.*

Corpus primæ magnitudinis, hirsutissimum.

Alæ omnes utrinque concolores, villosæ, albæ, reticulatæ venis atris, interdum crassioribus ut maculas formen.

Rusticas inter Phalænas hæc prima & maxima omnium est.

Larva subpilosa, nigra annulis lineaque laterali

crepuſcularis. 13. PHALÆNA Noctua ſpirilingvis lævis, alis patulis griſeis faſcia maculaque albis; ſuperioribus ocello fuſco. *Syſt. Nat.* 509. *n.* 65. *Clerck. t.* 53. *f.* 1, 2.

Habitat in *America*.

Corpus ſecundæ magnitudinis.

Alæ *ſupra* omnes fuſcæ.

Faſcia linearis, repanda, albida, dentata, transverſim arcuata.

Ocellus fuſcus, lunula ferruginea, maximus, orbiculatus, in medio alæ.

Macula alba, parva, ante apicem extimum, juxta marginem anteriorum in omnibus. *Hæc ſingularis nota ſpeciei.*

ſubtus omnes pallido-fuſcæ.

Maculæ aliquot, lunares, albæ, ſparſæ, verſus marginem exteriorem.

14.

14. PHALÆNA Noctua ſpirilingvis lævis, alis patulis dentatis nebuloſis linea pallida; ſuperioribus ocello lunato punctoque. *Syſt. Nat.* 509. *n.* 66. *Clerck. t.* 54. *f.* 1. occidua.

Habitat in *America*.

Corpus tertiæ magnitudinis.

Antennæ fuſcæ, ſetaceæ.

Pedes fuſci, annulis albis.

Alæ *ſupra* omnes ferrugineo fuſcoque nebuloſæ; poſtice valde dentatæ.

Faſcia pallide flaveſcens, longitudinalis, obſoleta, in primoribus.

Punctum ferrugineum, majuſculum, ad marginem anteriorem primorum.

Macula rotundata cum lunula, magna.

Faſcia transverſa, alba, linea repanda nigra.

-- *ſubtus* omnes cineraſcentes, Maculis obſoletis nigris.

15.

punctigera. 15. PHALÆNA Noctua ſpirilingvis lævis, alis depreſſis: ſuperioribus puncto calloſo apiceque ocellato; inferioribus albis. *Syſt. Nat.* 509. *n.* 67. *Clerck. t.* 50. *f.* 3.

Habitat in *Indiis.*

Corpus Phal. Jacobææ, pallidum.

Antennæ Pedesque pallidi.

Alæ *Primores* cineraſcentes.

Area lunata, albida: cornu altero medium marginem exteriorem; altero apicem reſpiciente.

Ocellus niger iride flava, in pagina ſuperiore, ad apicem alæ.

-- *Poſticæ* albo-flaveſcentes.

-- *ſubtus* omnes flaveſcentes.

Nota ſingularis: Punctum calloſum eraſſum, ad marginem interiorem alæ primoris, in medio ſuprà dorſum.

16.

16. PHALÆNA Bombyx elingvis, alis deflexis atris: rivulis rubicundis; inferioribus rubris nigro-punctatis. *Syst. Nat.* 501. *n.* 23. *Clerck. t.* 42. *f.* 5. Virgo.

Habitat in *America* septentrionali. P. Kalm.

Corpus habitu Ph. Cajæ, sed paulo minus & rivuli in alis primoribus longe confertiores.

Antennæ ferrugineæ, simplices.

Thorax pallidus, nigro-maculatus.

Abdomen a tergo rubrum, subtus nigrum.

Pedes fusci.

Alæ *Primores* concolores, atræ: Rivulis rubris, varie decussatim reticulatæ.

— *Posticæ* utrinque rubræ,

Maculæ nigræ, rotundæ, sparsæ.

17.

decora. 17. PHALÆNA Noctua ſubſpirilingvis, alis ſuperioribus albo nigroque variegatis; inferioribus rubris margine nigro.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus mediæ magnitudinis, nigricans, ſegmentis abdominis margine rufeſcentibus.

Antennæ nigræ, corpore triplo breviores.

Pedes nigricantes, luteſcente-hirſuti: tarſis nigris, albo annulatis.

Alæ *ſuperiores ſupra* a nigro albo rubroque perbelle variegatæ; in rubro colore 4 puncta majora conſpiciuntur, quorum duo media approximata. Faſcia rubra ſerrata verſus poſtica. Margo poſticus late niger, punctis 7 oblongis albis in ſeriem digeſtis.

-- - *ſubtus* ad maximam partem rubræ, immaculatæ; ſed verſus marginem exteriorem non nihil, ut ſupra, pictæ.

-- *inferiores* concolores, rubræ, immaculatæ. Margo poſticus linea nigra conſtat.

18.

18. PHALÆNA Noctua ſpirilingvis lævis, alis deflexis concoloribus fulvis margine nigris. *Syſt. Nat.* 509. *n.* 71. *Clerck. t.* 55. *f.* 5, 6. Fulvia.

Habitat in *Indiis*.

Corpus quartæ magnitudinis, nigrum, uti etiam Antennæ & Pedes.

Thorax a tergo antice bifariam fulvus.

Abdomen nigrum, ſubtus flavum.

Alæ omnes oblongæ.

Margo undique ater.

Diſcus utrinque fulvus.

ornatrix. 19. PHALÆNA Noctua ſpirilingvis lævis, alis depreſſis rubris atro punctatis; inferioribus albo nigroque variis. *Syſt. Nat.* 511. *n.* 80. *Clerck. t.* 55. *f.* 2.

Habitat in *America* ſeptentrionali.

Corpus magnitudine P. Argi.

Antennæ nigræ.

Lingva ſpiralis, rubra.

Thorax albidus, nigro punctatus, lateribus rubris.

Alæ *Primores ſupra* incumbentes, flaveſcentes margine rubro punctis nigris.

— — *ſubtus* rubræ, Maculis nigris poſticis.

— *Poſticæ* utrinque pallidæ.

Latus exterius rubrum.

Poſtice nigro variegatæ.

20. PHALÆNA Noctua ſpirilingvis lævis, alis deflexis fuſcis concoloribus: ſuperioribus linea, inferioribus baſi albis. *Syſt. Nat.* 511. *n.* 82. heliconia.

Habitat in *Indiis*.

Corpus magnitudine Ph. Jacobææ.

Thorax flavus, a tergo maculatus.

Abdomen flavum trifariam (dorſo & lateribus) fuſco-maculatum.

Antennæ & Pedes fuſci.

Alæ *Primores* utrinque ſubfuſcæ.

Linea alba, longitudinalis, verſus apicem craſſior, a baſi ad medium alæ.

Poſticæ albæ a baſi ad medium; fuſcæ a medio ad apicem.

rubicollis. 21. PHALÆNA Bombyx ſpirilingvis lævis nigra, collari purpureo, abdomine flavo. *Syſt. Nat.* 511. *n.* 83. *Clerck. t.* 2. *f.* 3.

Fn. 1154. Ph. rubicollis.

Habitat in *Europa.*

Corpus quartæ magnitudinis.

Caput parvum, ſanguineum, oculis nigris, ore viridi.

Antennæ pectinatæ, cæruleæ.

Thorax viridis, antice ſanguineus.

Alæ *Primores ſupra* virides, nigro-variegatæ: faſciis duabus, interruptis, albis.

-- - *ſubtus* nigricantes, cæruleſcentes; faſciis duabus albis interruptis.

-- *Poſticæ* albæ, verſus marginem poſticum nigræ.

-- - *ſubtus* concolores.

Pedes ferraturis albis, tibiis cæruleſcentibus.

22.

22. PHALÆNA Noctua ſpirilingvis criſtata, alis dentatis deflexis cinereo-nebuloſis; inferioribus ſupra nigris faſcia cæruleſcente. *Syſt. Nat.* 512. *n.* 89. *Fn. ſuec.* 1165. Fraxini.

Merian. europ. t. 46.

Wilk. pap. 45. *t.* 1. *a.* 2.

Ræſ. inſ. 4. *p.* 28. *t.* 1. *f.* 1.

Ammiral. t. 25.

Habitat in *Europæ* Fraxino, Populo.

Corpus inter maxima Phal. europæarum, cinereum, ſubtus album.

Antennæ ſetaceæ.

Alæ *Primores* deflexæ, nebuloſæ e cinereo fuſcæ, venis undatis fuſcis.

Striga una alterave alba nigraque & punctum album majuſculum in medio.

-- *Poſticæ* fuſcæ margine albo.

Faſcia cinereo-cærulea, lata, arcuata, in medio alæ.

-- - *ſubtus* albæ.

Lunula & Faſcia arcuata nigra.

Limbus niger.

Obſ. Alæ omnes margine poſtico repandæ ſunt.

pellex. 23. PHALÆNA Noctua ſpirilingvis lævis, alis fuſcis: lineis tribus maculaque transverſa; inferioribus diſco albis. *Syſt. Nat.* 10. *p.* 510. *n.* 75.

Habitat in *Indiis.*

Corpus habitu & magnitudine Ph. Jacobææ.

Abdomen teretiuſculum, albidum, ano rubro.

Alæ *Primores utrinque* fuſcæ.

Macula alba, ovalis, transverſa, in medio.

Lineæ 2, albæ, longitudinales: ad baſin harum interior coit cum macula alæ oppoſitæ; Exterior vero linearis, alba, ſæpe interrupta.

Puncta 3, alba, intra marginem poſticum.

Poſticæ diſco albo cinctæ Margine fuſco, anguſto exterius, lato poſterius.

Maculæ 3, albæ, intra marginem poſticum.

24.

24. PHALÆNA Noctua ſpirilingvis, alis deflexis nigris maculis cæruleis flavis albisque; inferioribus maculis rubris albisque. lectrix.

Habitat in *China*.

Corpus magnitudine Pap. Braſſicæ.

Thorax niger, ad latera baſeos flavus & ſupra ad baſin punctis duobus flavis.

Abdomen fulvo-rubrum, faſciis a tergo latis nigris.

Antennæ filiformes. *Palpi* nigri punctis duobus niveis.

Pedes nigri.

Alæ *Primores ſupra* atræ.
Maculæ aliquot cæruleſcentes parvæ, ad baſin.
Maculæ 4, flavæ, majores, in medio.
Puncta alba, quinque, parva, verſus apicem.

-- - *ſubtus* concolores.

-- *Poſticæ ſupra* atræ.
Maculæ rubræ, confertæ, in diſco verſus baſin.
Puncta tria alba, verſus marginem exteriorem.

-- - *ſubtus* concolores, ſed
Puncta alba quatuor.

fascelis. 25. PHALÆNA alis luteis limbo nigris; fascia maculari alba.

Habitat * * * *

Corpus tertiæ magnitudinis, fuscum, supra albo maculatum triplici serie.

Alæ omnes concolores.

Primores saturate luteæ, extrorsum versus apicem nigricantes.

Maculæ circiter 7, albæ, confluentes in fasciam transversam.

Posticæ saturate luteæ, extrorsum versus marginem nigræ.

Puncta 7, alba, ovata, in seriem digesta.

26.

26. PHALÆNA GEOMETRA pectinicornis, alis caudato-angulatis flavescentibus lineis duabus; posticis apicibus bipunctatis. *Syst. Nat.* 519. *n.* 129. *Fn. suec.* 1222. *Clerck. t.* 50. *f.* 2. Sambucaria.

Gad. inf. 2. *t.* 34.

Pet. gaz. t. 51. *f.* 6.

Raj. inf. 177. *n.* 1.

Alb. angl. 94.

Wilk. inf. 38. *t.* 1. *B.* 2.

Rœs. inf. 177. *n.* 3.

Habitat in Sambuco *Europæ.*

CORPUS mediæ magnitudinis, albidum.

ANTENNÆ magnæ, pectinatæ, pallidæ.

ALÆ *supra omnes* patentes, albidæ.

Fasciæ 2, cinereo-obsoletæ, lineares, transversæ.

Maculæ s. Puncta 2, fusca, in Angulo alæ postico, extrorsum versus acuminato.

-- - *subtus* omnes albidæ.

Linea fusca, oblique ab apice alæ primoris ad angulum ani posticæ. (*In aliis deest hæc Linea.*

tripunctaria. 27. PHALÆNA Geometra pectinicornis, alis fuſceſcentibus: anterioribus faſcia interrupta baſeosque ſtria; poſterioribus diſco albis. *Syſt. Nat.* 523. *n.* 152.

Pet. gaz. t. 28. *f.* 8. Phalæna luzonica e fuſco & albo utraque parte conſpicue maculata.

Edw. av. 35. *t.* 35.

Habitat in *Aſia.*

Corpus magnitudine Pap. Rapæ.

Abdomen album, trifariam nigro punctatum.

Antennæ pectinatæ, anguſtiſſimæ.

Lingva ſpiralis.

Anus flavus.

Alæ *Primores* concolores, oblongæ, cinereo-fuſcæ.

Faſcia alba, tranſverſa ex Maculis 6 ſ. 7 oblongis, coadunatis, in medio alæ.

Linea alba, præter ſtrias minores, a baſi alæ ad medium, juxta marginem interiorem.

-- *Poſticæ* albæ, ſeu potius diſco albo poſtice repando.

Margine cinereo fuſco: exteriore & poſtico lato.

-- *ſubtus* omnes concolores ſimilesque ſuperioribus.

Thorax ad latera tegitur duabus ſquamis, lanceolatis, acuminatis, cinereis, nigro carinatis, in hac ſpecie evidentius, quam in aliis, cum hæ ſquamæ ſint longitudine totius thoracis.

Scutellum puncto nigro.

Collum flaveſcens, ſupra punctis duobus nigris.

Femora alba; antica ad baſin puncto nigro notata.

28.

28. PHALÆNA Geometra pectinicornis, alis albidis punctis quibusdam ferrugineis luteo-annulatis.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus mediæ magnitudinis, albicans, capite ſubflaveſcente.

Antennæ albæ, bifariam pectinatæ, radiis fuſcis.

Alæ ſubconcolores, patentes, integerrimæ, albidæ.

-- *Primores ſupra* punctis ocellaribus luteis centro ferrugineo, ſeptem, in faſciæ formam digeſtæ. Præter hæc, tria ejus modi puncta verſus baſin & unum in medio.

-- - *ſubtus* concolores, ſed obſoletiores: Puncta 7 ut ſupra; ſed alia tantum duo, quorum unum in medio; unum ad marginem anticum verſus baſin.

-- *Poſticæ* ſimiles; ſed puncta 7 obſoleta ſupra, ſubtus evidentiora.

Punctum ferrugineum, lunatum, in medio alæ ſubtus, absque annulo luteo.

tricinctaria. 29. PHALÆNA GEOMETRA pectinicornis, alis flavescentibus concoloribus: arcubus tribus fuscis. *Syst. Nat.* 523. *n.* 153.

Habitat in *America*.

CORPUS magnitudine Pap. Cardamines.

ANTENNÆ pectinatæ, fuscæ.

ALÆ concolores, flavæ, at supra pallidiores.

Arcus fuscus ex costa Primoris ad anum ducit.

Arcus altera a costa Primorum ducit per medium alæ anterioris, ad marginem alæ Posticæ.

Arcus tertius apicem Alæ anterius claudit.

30.

30. PHÀLÆNA GEOMETRA pectinicornis, alis nigris concoloribus: anterioribus maculis duabus, posterioribus unica flavis. *Syst. Nat.* 523. *n.* 154. *Clerck. t.* 55. *f.* 3. Jatropharia.

Merian. surin. 38. *t.* 38. *f.* 1. in Jatropha gossypifolia.

Habitat in *America*.

CORPUS quintæ magnitudinis.

ANTENNÆ - - - - -

ALÆ *Primores utrinque* nigræ.

Macula flava, ovata, magna, transversa.

Macula flava, minor, oblonga, versus basin. (Hæc in altero sexu deest).

-- *Posticæ utrinque* flavæ.

Margo posticus late niger.

flaveolata. 31. PHALÆNA GEOMETRA ſeticornis, alis nigris concoloribus: diſco communi flavo crenulato. *Syſt. Nat.* 525. *n.* 165.

Habitat in *Indiis.*

CORPUS quartæ ſ. quintæ magnitudinis, Capite, Thorace, Lingva, Abdomine flavum, apice abdominis nigro.

ANTENNÆ ſetaceæ, nigræ.

PEDES flavo & nigro varii.

ALÆ *Primores utrinque* nigræ.

Macula flava, magna, extrorſum crenata, antice ſinu excavata ad marginem tenuiorem, verſus baſin.

-- *Poſticæ utrinque* a baſi ultra medium flavæ.

Margo diſcum verſus crenatus; reliquum alæ verſus marginem exteriorem nigrum.

Nervi alarum apice albeſcunt.

32.

32. PHALÆNA GEOMETRA ſeticornis, alis fuſcis concoloribus: maculis albis oblongis coadunatis. *Syſt. Nat.* 525. *n.* 166. æſtuata.

Habitat in *Indiis*.

CORPUS tertiæ magnitudinis, pallidum.

ANTENNÆ nigræ.

PEDES pallidi albo notati.

ALÆ omnes concolores utrinque, fuſcæ.

— *Primores utrinque* concolores.

Maculæ, 2, oblongæ, fere contiguæ, albæ ad baſin.

Maculæ 6, albæ, oblongæ, obtuſæ, coadunatæ, in diſco.

Margo Linea alba notatus.

— *Poſticæ* fuſcæ.

Macula ex 7, albis, linearibus, obtuſis, coadunatis, majorem alæ partem a baſi verſus marginem occupans.

Margo poſticus lineola alba.

Janata. 33. PHALÆNA GEOMETRA ſeticornis, alis anterioribus ſubtus cinereis; poſterioribus ſupra faſcia punctisque tribus albis. *Syſt. Nat.* 527. *n.* 184.

Habitat in *Indiis.*

CORPUS mediæ magnitudinis, cinereum.

ANTENNÆ nigræ.

OCULI nigri.

ALÆ *Primores ſupra* cinereæ.

Lineæ 2, ſaturatiores, undatæ, transverſæ, remotæ.

-- *ſubtus* cinereo-fuſcæ.

Faſcia alba, in medio.

-- *Poſticæ ſupra* fuſcæ.

Faſcia transverſalis, alba.

Maculæ 3, albæ, in margine poſtico.

-- *ſubtus* cinereæ.

Lineæ 2, ſaturatiores, undatæ, transverſæ.

Macula rotunda, fuſca, ad anguluin ani.

Obſ. *Si Phalæna ſubtus inſpiciatur, ut cauda loco capitis ſit, & ſi maculæ ani pro oculis ſumantur, refert Phalæna ſuperiorem paginam.*

34. PHALÆNA TINEA alis flavis: ſuperioribus faſciis ſex punctorum nigrorum. *Syſt. Nat.* 534. *n.* 237. bella.

Pet. gaz. 9. *t.* 3. *f.* 2. Phalæna mariana minor fulva maculis nigris, alba linea pulcre adſperſis.

Catesb. car. 2. *p.* 96. *t.* 96.

Habitat in *America* ſeptentrionali.

CORPUS magnitudine Pap. Argi, flavum, adeoque noſtratibus Tineis majus.

CAPUT albidum puncto nigro inter antennas.

ANTENNÆ nigræ.

OCULI nigri.

THORAX albidus punctis trium parium nigris.

PEDES flavi.

ALÆ *Primores* utrinque flaveſcentes:

Faſciæ albæ plures, & in his

Puncta fuſca ordinibus totidem digeſtis.

Poſticæ utrinque poſtice nigræ, extrorſum albidæ nigro-nebuloſæ, introrſum ſanguineæ.

Varietas Punctis primorum annulo obſoleto pallido cinctis.

OR-

ORDO IV.

NEUROPTERA.

Hemerobius.

Hic Ordo deficit in Muſeo.

HEMEROBIUS.

1. HEMEROBIUS antennis clavatis, alis nigro punctatis maculatisque. Libelloides.

Pet. gaz. 6. t. 3. f. 1. Libella turcica major, alis locuſtæ.

Habitat in *Europa auſtrali, Aleppo, Cap. b. ſpei.*

Corpus magnitudine Libellulæ majoris.

Caput nigricans: Labio flavo punctisque duobus flavis inter antennas.

Antennæ nigræ, clavatæ.

Collum ſupra nudum, flavum.

Thorax flavus, lineis tribus nigris, villis albis hirſutus.

Abdomen Libellulæ, nigrum, linea utrinque flava.

Alæ *ſuperiores* deflexæ, oblongæ, ſubflaveſcenti-albidæ, hyalinæ, undique adſperſæ & fere nebuloſæ punctis nigris venarumque anaſtomoſibus confertiſſimis, albidis; ex hisce punctis 4 ſ. 5 maculæ nigræ ſunt.

Alæ *inferiores* hyalinæ, confertiſſimis anaſtomoſibus albis & tribus vel quatuor maculis magnis nigris diſformibus didymis, una poſt alteram, pictæ, præter margines nigro-punctatos.

Pedes nigri.

Mas cauda ſetis 2, rigidis, hirtis, apice ungviculatis, quibus ſociam prenendit.

longicornis. 2. HEMEROBIUS antennis clavatis longitudine corporis, alis flavis maculis duabus nigris difformibus. *Gouan.*

Habitat *Monspelii.*

Corpus magnitudine H. Perlæ, nigrum.

Caput nigrum, pilosum Occipite flavo. Macula flava supra oculos.

Antennæ nigræ, longitudine corporis, apice clavatæ, ut Papilionibus.

Thorax ater, villosus, supra Punctis octo luteis.

Alæ *superiores* luteæ: Macula oblonga, nigra, ad basin & Lineola nigra versus marginem exteriorem.

Alæ *inferiores* flavæ, basi nigræ, & Lunula nigra versus apicem.

Abdomen nigrum.

Femora & Tibiæ flavæ. Plantæ nigræ.

OR-

ORDO V.

HYMENOPTERA.

Cynips.
Sphex.
Veſpa.
Apis.
Formica.
Mutilla.

CYNIPS.

Sycomori. 1. CYNIPS F. Sycomori. *Syſt. Nat.* 554. *n.* 14.

Ichneumon Sycomori *Haſſelqu. it.* 426. *n.* 113.

Habitat in *Ægypto.*

Corpus magnitudine Pulicis, anguſtum, longum, nigrum, glabrum, quaſi corneum.

Antennæ thorace breviores, filiformes, ſubclavatæ, nigræ.

Thorax longitudine abdominis.

Alæ immaculatæ, hyalinæ.

Cauda exſerta, filiformis, laxa, bivalvis, longitudine corporis.

Pedes pallidi, flaveſcentes.

SPHEX.

1. SPHEX ferruginea, thorace variegato, abdominis petiolo macula utrinque ad basin flava, thorace variegato. *Syst. Nat.* 569. *n.* 3. asiatica.

Habitat in *Asia*.

Caput fuscum.

Maxillæ incurvæ, nigræ.

Palpi nigri.

Antennæ nigræ, setaceæ, longitudine thoracis, articulo primo flavo.

Thorax oblongus, subvillosus subtus, maximaque ex parte supra niger.

Linea flava, transversa, ad marginem anteriorem.

Lineæ duæ, flavæ, transversæ, inter alas.

Macula flava, parva, obovata, ad latera.

Apex maxima ex parte flavus: sinu antice bifido.

Abdomen pedunculatum, ovatum, nigrum.

Macula flava, ovata, utrinque ad basin.

Pedunculus filiformis, longitudine ipsius abdominis, supra niger, subtus flavus.

Pedes anteriores 4, flavi.

postici toti nigri.

ægyptia. 2. SPHEX nigra, petiolo abdominis pedumque articulis dimidiatis flavis. *Syst. Nat.* 569. *n.* 4.

Habitat in *Ægypto*. D. Hasselquist.

Magnitudo media vel inter majores.

Caput nigrum.

Thorax ater, immaculatus, villosus.

Abdominis pedunculus filiformis, longitudine thoracis s. ipsius abdominis, pallide flavus.

Segmenta abdominis 6, glabra, atra, immaculata.

Pedes 1. 1, 2. 2. medio flavi.

3. 3. articulo primo basi nigro, secundo flavo, quarto & tertio versus basin flavis, versus apicem nigris.

fervens. 3. SPHEX nigra, abdomine petiolato ferrugineo, alis cæruleſcentibus. *Syst. Nat.* 569. *n.* 5.

Habitat - - -

Caput nigrum.

Maxillæ incurvæ, acutæ.

Rostrum subulatum, maxillis longius.

Palpi capillares.

Antennæ nigræ, setaceæ.

Thorax oblongus, nudus, niger.

Gibbus dorsi inter alas elevatus, inæqualis.

Puncta 2, atra, glabra, distantia, a tergo thoracis pone alas.

Alæ nigro-cæruleſcentes.

Abdomen ovatum, ferrugineum, glabrum.

Petiolus niger, abdomine brevior.

Aculeus brevis, intra corpus.

Pedes nigri.

Tibiæ pilosæ.

4.

4. SPHEX nigra lævis, antennis tibiis alisque teſtaceis; his apice nigris. capenſis.

Habitat ad *Cap. b. Spei.* Tulbagh.

Corpus magnitudine S. viaticæ, totum nigrum, glabrum.

Thorax ſupra minus glaber.

Abdomen ſubſeſſile.

Antennæ ferrugineæ, filiformes.

Palpi ferruginei.

Tibiæ Tarſi & Plantæ ferrugineæ.

Alæ ferrugineæ, ſed limbus apicis & marginis tenuioris fuſcus.

5. SPHEX atra, abdomine petiolato, alis nigro-cæruleſcentibus: margine tenuiore hyalino. *Syſt. Nat.* 569. *n.* 6. indoſtana.

Habitat in *Indiis.*

Corpus facie & magnitudine Crabronis.

Nigra ſunt Caput, Thorax, Abdomen, Pedes, Antennæ, omnia.

Caput: Maxillæ 2, incurvæ, validæ, acuminatæ.

Lingva breviſſima, reflexa.

Palpi 4, ſub ore.

Antennæ ſubulatæ, thorace breviores, articulis XI.

Thorax parum hirſutus, poſtice gibbus.

Alæ fuſcæ venis ferrugineis, poſtice magis membranaceæ & hyalinæ.

Abdomen glabrum, petiolatum, ſupra gibbum, ſegmentis ſex, apice ſubaculeatum.

Tibiæ piloſæ.

indica. 6. SPHEX atra, pedibus antennisque ferrugineis; alis atro-cæruleſcentibus. *Syſt. Nat.* 571. *n.* 13.
Habitat in *Indiis.*

Corpus magnitudine & habitu Crabronis.
Caput nigrum.
Oculi fuſci.
Rostrum breve, acuminatum.
Palpi 4, ferruginei, quorum 2 inferiores minores.
Antennæ ſubulatæ, ferrugineæ, articulis 11, longitudine thoracis.
Thorax niger, poſtice gibbus.
Alæ atro-cæruleſcentes.
Abdomen ovatum, nigrum, ſeſſile, ſegmentis ſex. Aculeus Crabronis exſertilis.
Pedes rufi. Tibiarum apices ſetis 2 rigidis.
Color Capitis, Thoracis, Abdominis, Alarum ater.

tropica. 7. SPHEX nigra, oculis albis, abdominis ſegmento ſecundo latiore ferrugineo. *Syſt. Nat.* 571. *n.* 14.
Habitat in *Indiis.*

Corpus magnitudine Crabronis, totum nigrum.
Caput atrum, parvum, piloſum.
Puncta verticis 3, alba, calloſa, ut in plerisque.
Maxillæ lunatæ, incurvæ, dentatæ, latæ, breves.
Lingva vix ulla ſ. ſetacea.
Palpi 4, ſub maxillis.
Oculi lunati, nivei.
Antennæ ſubclavatæ, nigræ.
Thorax convexus, niger, Pilis breviſſimis, erectis, raris.
Alæ ferrugineæ.
Abdomen oblongum, ventricoſum, nigrum, adſperſum pilis vix manifeſtis: Segmentum ſecundum latius reliquis, ferrugineum ſupra & infra, vix vero lateribus.
Pedes nigri.

VE-

VESPA.

1. VESPA roſtro corneo ſubulato, abdomine atro: ſegmento ſecundo majore. *Syſt. Nat.* 574. *n.* 13. cornuta.

Habitat in *Indiis*.

Caput ferrugineum, terminatum Roſtro, occipite fuſcum.

Rostrum corneum, ſubulatum, bivalve, ſub quo Lingva.

Cornua (in *mare* tantum) duo, roſtro & capite duplo longiora, ſubulata, acuminata, incurva, pallida.

Antennæ filiformes, obtuſæ, ferrugineæ.

Thorax ferrugineus, poſtice depreſſus, emarginatus, latere dentatus.

Macula nigra, magna, a tergo thoracis.

Alæ nigræ.

Abdomen atrum, ſegmento ſecundo maximo.

Pedes ferruginei.

Magnitudo Crabronis.

signata. 2. VESPA thorace supra nigro lineis quatuor fasciolisque duabus flavis. *Syst. Nat.* 574. *n.* 14.

Amœn. acad. 5. *t.* 3. *f.* 217.

Habitat in *America*.

CAPUT fuscum.

OCULI magni, pallidi.

OS flavum Labio inflexo, maxillis apice nigris.

LINGVA non manifesta.

ANTENNÆ nigræ, incurvæ, basi flavæ.

THORAX glaber, supra niger, subtus flavus, gibbus.

Lineæ 4, longitudinales, flavæ, parallelæ.

Lineæ 2, transversæ, flavæ, in scutello.

ABDOMEN oblongum, nigrum, acutum.
Incisuræ margine flavæ.

Macula nigra, triloba, transversa (in singulo segmento) lobis lateralibus rotundatis; intermedio acuto.

Subtus Abdomen flavum, cum puncto nigro in singulo segmento; at in penultimo linea transversalis nigra.

PEDES flavi, extus linea nigra.

3. VESPA thorace ſquamis duabus, abdominis ferruginei ſegmento primo obconico. canadenſis.
Syſt. Nat. 574. *n.* 15.

Sultz. inſ. t. 19. *f.* 4.

Habitat in *America* ſeptentrionali frequens. P. Kalm.

CAPUT ferrugineum. Puncta 3 in vertice.

MAXILLÆ curvæ, breves, dentatæ.

PALPI nulli manifeſti.

ANTENNÆ filiformi-clavatæ, medio fuſcæ.

THORAX ad caput margine acuto.

Rugæ 2 transverſæ inter alas.

ALÆ ferrugineæ, anguſtæ, longitudine abdominis.

ABDOMEN ovato-oblongum, ſegmentis ſex, primo obconico.

Squama utrinque a tergo thoracis verſus femora.

CORPUS Veſpæ magnitudine ſed anguſtius.

emarginata. 4. VESPA ſcutello emarginato, abdominis nigri petiolo incurvo utrinque unidentato. *Syſt. Nat.* 574. *n.* 16.

Habitat in *America*.

Caput nigrum, Labio ovato, ferrugineo.

Maxillæ ovatæ in roſtrum ſubulatum.

Lingva Apis.

Antennæ ſubclavatæ, ferrugineæ, verſus apices fuſcæ: articulo primo ad apicem Denticulo obſoleto notato.

Thorax nigro-ferrugineus apice ſubbifido.

Abdomen ovatum, nigrum.

Petiolus clavatus, fuſco-ferrugineus, longitudine fere abdominis, incurvus, notatus in medio utrinque Denticulo minimo.

Pedes ferruginei.

helvola. 5. VESPA teſtacea, thorace hirſuto, pedibus ferrugineis, femoribus compreſſis.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus magnitudine V. vulgaris, totum teſtaceum, exceptis oculis nigris.

Caput vertice hirſuto, maxillis majuſculis.

Oculi globoſi, extantes, nigri.

Antennæ filiformes, articulis 10, primo longiore.

Thorax villoſus, læviter compreſſus & ſuturis notatus.

Alæ hyalinæ, venis ſubferrugineis.

Abdomen ſubcylindricum, apice obtuſum, inciſuris decem, prima magis diſtincta & hemiſphærica; fere glabrum eſt excepto apice.

Pedes ferruginei. *Femora* omnia valde compreſſa.

A-

APIS.

1. APIS nitida viridis, alis nigris, femoribus posticis dentatis. *Syst. Nat.* 575. *n.* 11. dentata.

Habitat in *America*.

Corpus lævc, Ape mellifica majus vel fere Crabronis.

Caput cæruleum, Maxillis incurvis.

Lingva longitudine Thoracis, vel in quibusdam ferme totius corporis.

Oculi rufi.

Thorax glaber.

Scutellum gibbum tuberculis 2 obsoletis.

Alæ atræ, nitidæ.

Abdomen ovatum, glabrum, segmentis sex, apice acuminatum.

Femora postica subtus dentata.

Tibiæ posticæ dilatatæ versus apicem.

Color totius æneo-viridis nitens.

Varietas duplo major:

Abdomen minus conicum ad apicem.

Femora subtus minus dentata, sed genu mucronato.

2.

cordata. 2. APIS nitida viridis, alis hyalinis, abdomine cordato, tibiis posticis dilatatis. *Syst. Nat.* 575. *n.* 12.

Habitat in *Indiis*.

CAPUT viride.

OCULI pallidi.

LINGVA longitudine Thoracis.

ANTENNÆ subclavatæ, nigræ.

THORAX viridis, subvillosus, apice obtuso.

ALÆ hyalinæ venis fuscis.

ABDOMEN segmentis 6, cordatum, breve, acuminatum.

TIBIÆ posticæ admodum dilatatæ: lobo adscendente compresso.

COLOR totius viridis.

MAGNITUDO Muscæ domesticæ.

3.

3. APIS ſubpubeſcens fuſca, abdomine cingulis quatuor fuſcis. *Syſt. Nat.* 576. *n.* 15. zonata.

Habitat in *Indiis.*

CAPUT fuſcum, ſubvilloſum.

OCULI pallidi.

LINGVA longitudine Thoracis, ferruginea.

ANTENNÆ clavatæ, nigræ.

THORAX ſubvilloſus, nigricans pilis pallidis.

ABDOMEN ovatum, glabrum, atrum: ſegmentis abdominis 4 margine cæruleis.

PEDES poſtici hirſuti, cineraſcentes.

Magnitudo & Habitus Muſcæ.

4. APIS hirſuta atra, alis cæruleſcentibus. *Syſt. Nat.* 578. *n.* 29. violacea

Pet. gaz. t. 12. *f.* 5. Bombylius luſitanicus e nigro cæruleſcens.

Reaum. inſ. 6. *t.* 5. *f.* 1, 2.

Habitat in *Europa* auſtrali.

CAPUT ſupra glabrum.
Puncta 3 in vertice.

ANTENNÆ thorace breviores: articulo infimo elongato.

THORAX ater, ſupra glaber.

ALÆ atro-cæruleſcentes.

ABDOMEN hirtum, ſupra glabrum, atrum.

Nidificationem hujus egregie deſcripſit Reaumur. l. c.

5.

æstuans. 5. APIS hirsuta nigra, thorace flavo. *Syst. Nat.* 579. *n.* 37.

Habitat in *Calidis* regionibus.

Caput nigrum, crassum.

Oculi brunnei.

Antennæ nigræ, filiformes.

Maxillæ crassæ.

Lingva inflexa, longitudine capitis.

Thorax hirsutus, supra flavus, subtus niger.

Alæ atræ, subnitentes.

Abdomen subrotundum, breve, latum, hirsutum, nigrum.

Pedes hirsuti, nigri.

VARIETATES Aliis Thorace supra flavo.
Aliis Thorace flavo antice nigro & Abdómine nigro antice flavo.

tropica. 6. APIS hirsuta nigra, abdomine postico flavo. *Syst. Nat.* 579. *n.* 38.

Habitat in *Calidis* regionibus.

Caput nigrum.

Oculi pallidi.

Antennæ subclavatæ, filiformes.

Lingva inflexa, longitudine abdominis.

Thorax crassus, ater, vellere brevi.

Abdomen ovatum, magnitudine Thoracis, vellere brevi testaceo, basi atrum, apice acutiusculo.

Femora villosa, atra.
postica terminata spina.

7.

7. APIS AFFINIS.

Habitat cum præcedenti.

CAPUT craſſum, obſcure teſtaceum.
LABIUM obtuſum punctis excavatum.
MAXILLÆ atræ, incurvæ, tridentatæ, breves.
ANTENNÆ filiformi-clavatæ.
THORAX pubeſcens, obſolete teſtaceus, brevis.
ABDOMEN ovatum.
Segmenta 1. 2. majora, corpori concoloria, ſecundo tamen pallidiore.
Segmenta reliqua nigra.
PEDES obſolete ferruginei.

Affinitas *facie & habitu antecedentis Sphegis tropicæ, quam confirmant thoracis craſſities, frons & Maxillæ, licet Color alius & Magnitudo inferior, adeoque non audeo hanc pro diſtincta ſpecie venditare, nec eadem ſpecie cum præcedente conjungere.*

8. APIS OBSCURA.

Habitat - - - -

CAPUT nigrum, vertice Punctis 3 nitidis.
LABIUM ſuperius teſtaceo-flavum, ſubtus attenuatum.
MAXILLÆ duæ, ſubulatæ, rectæ.
LINGUA ſubulata.
PALPI nulli.
ANTENNÆ filiformi-clavatæ, teſtaceo-luteæ.
THORAX vix manifeſte villoſus.
ABDOMEN ſeſſile, ovato-oblongum.
Segmenta 4 ultima luteo-ferruginea.
PEDES nigri.

FORMICA.

Pharaonis. 1. FORMICA rufa, abdomine magis fuſco. *Syſt. Nat.* 580. *n.* 7.

Formica minima Ægypti. D. Haſſelquiſt.

Habitat in *Ægypto.*

Longitudo Pulicis; craſſities ſetæ equinæ.

Tota pallide rufa, ſed abdomine ſubfuſceſcente.

Salomonis. 2. FORMICA rubra, abdomine nigro ſubvilloſo. *Syſt. Nat.* 580. *n.* 8.

Habitat in *Ægypto.* D. Haſſelquiſt.

Magnitudo Formicæ vulgaris.

Corpus totum, excepto abdomine, rubrum.

Caput majuſculum, planiuſculum, rubrum.

Oculi minimi, nigri.

Antennæ 12 articulis, longitudine thoracis.

Thorax anguſtus, longus.

Abdomen ovatum, nigrum, ſubpiloſum, pilis rariſ breviſſimis.

Pedes longiores quam in noſtratibus, rufi.

MU-

MUTILLA.

1. MUTILLA nigra, abdomine fascia lutea lineaque alba. *Syst. Nat.* 583. *n.* 3. indica.

Habitat in *Indiis*.

CAPUT nigrum, villosum.
Fascia alba, transversa verticis inter oculos.

ANTENNÆ nigræ, incurvatæ, acutæ, thorace breviores.

THORAX ater, villosus.
Lineæ 2, albidæ, longitudinales, a parte postica tergi.
Puncta 2, elevata, ad latera; in medio quasi alarum rudimenta.
Latera pectoris juxta pedes utrinque alba.
Squamula nulla inter abdomen & pectus.

ALÆ nullæ.

ABDOMEN atrum, ovatum, villosum.
Segmentum 1 valde coarctatum, ut fere petiolatum evadat.
Punctum albidum utrinque ad segmentum 1.
Segmentum 2 terminatum Fascia lutea, medio interrupta, in medio abdominis sita.
Fascia longitudinalis alba, attenuata, ab ano ad medium dorsi ducta.
Linea alba utrinque, longitudinalis, in segmento 2 maximo.
Segmenta omnia subtus linea transversa terminata.

PEDES nigricantes, hirsuti.

MAGNITUDO fere Apis.

Affinitas multa huic intercedit cum Mutilla occidentali.

Genus est dubium quamdiu hanc vivam non vidimus. Impennes habemus & Vespas & Ichneumones; hi abdomine trement semper vivi. Formica esse nequit; Vespam ex facie, Ichneumonem ex colore facile judicarem, sed relinquendum autoptis dubium Insectum.

ORDO VI.

DIPTERA.

Tabanus.

Bombylius.

Hic etiam Ordo deficit in Muſeo.

TA-

TABANUS.

1. TABANUS oculis fuſceſcentibus, roſtro longitudine corporis. roſtratus.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus magnitudine & facie T. bovini, ut niſi roſtrum diſtingveret, facile eundem dicerem.

Caput fronte albicante.

Oculi fuſci.

Antennæ breves, ſubulatæ, nigræ, articulis tribus: extimo ſubarticulato.

Rostrum nigrum, ſetaceum, ut in Bombylio porrectum, longitudine totius corporis, quo valde ſingulare.

Mandibula roſtri ſuperior dimidio brevior inferiore.

Thorax fuſcus, pallidiore colore ſtriatus.

Pectus pubeſcens, albicans.

Abdomen ovatum, depreſſum, fuſcum, inciſurarum marginibus pubeſcentibus albidis; ſubtus nonnihil teſtaceum.

Pedes fuſci.

Alæ hyalinæ, ſubfuſceſcentes.

Rostrum ſe habet ut in Bombylio, ſed palpi ſ. dentes duo, utrinque ſcilicet ſolitarius adjacet roſtri baſi. Sub ipſa baſi roſtri proboſcis eſt.

barbatus. 2. TABANUS oculis nigris, roſtro corpore dimidio breviore.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus facie Muſcæ nemorum ſ. arbuſtorum.

Antennæ Tabani, nigræ, infimo articulo piloſo.

Oculi nigri, immaculati.

Rostrum nigrum, porrectum, longitudine dimidii corporis, utrinque fulcitum dente nigro.

(Sub roſtro dependet quaſi Sertularia dichotoma rufa, apicibus flava. An naturalis?)

Caput & Thorax palleſcente ſ. ſubgriſea pube.

Abdomen ovatum, ſupra nigricans, marginibus inciſurarum albidis; at duo prima ſegmenta lateribus ſubteſtacea, uti & hæc tota ſubtus.

Alæ hyalinæ, venoſæ.

Pedes nigricantes.

BOM-

BOMBYLIUS.

1. BOMBYLIUS alis nigro maculatis, corpore cinerascente, postice nigro. capenſis.

Habitat ad *Cap. b. ſpei.* Tulbagh.

Corpus B. medio simile, sed paulo minus, a quo differt quod corpus lana non testacea posticeve alba, sed albido-cinerea, in postica abdominis parte nigra.

Alæ similes, sed punctis triplo majoribus seu potius maculis nigris.

Rostrum non longitudine corporis, sed fere dimidio brevius.

ORDO VII.

APTERA.

Acarus.

Phalangium.

Aranea.

Scorpio.

Cancer.

Monoculus.

Scolopendra.

Julus.

A-

ACARUS.

1. ACARUS obovatus fuſcus margine albo. *Syſt. Nat. 615. n. 2.* ægyptius.

Habitat in *Ægypto*.

Corpus figura, magnitudine & facie A. Reduvii ſ. Feſting.

Color piceus ſ. fuſcus.

Abdomen læve, poſtice ſupra ſtriatum verſus marginem ſtriis circiter decem obſoletis, undique cinctum margine albo.

Thorax minimus in medio macula albida.

Os prominet antennis 2 obtuſis, parallelis, fuſcis cum interjecto roſtro albo.

Pedes fuſci geniculis albis.

PHALANGIUM.

caudatum. 1. PHALANGIUM chelis ramoſis, abdomine mucronato. *Syſt. Nat.* 619. *n.* 2.

Seb. muſ. 1. *p.* 112. *t.* 70. *f.* 7, 8. Scorpio africanus e guinea.

Habitat in *Java*.

Corpus oblongum, ferrugineum, ſubcylindricum, magnitudine Apis.

Thorax oblongus, ſemicylindricus, antice loco maxillarum chelis inſtructum.

Chelæ 2 longitudine thoracis, pedibus multoties craſſiores, articulis 5 conſtructæ, quorum

α. Denticulus exſertus ad baſin a latere interiore.

β. Subrotundus, inermis.

γ. Subrotundus, latere interiore ad apicem in ſpinam exiens.

δ. Chela ipſa ſubrotunda ventricoſa, ſubtus piloſa, apice in ſpinam exiens.

ε. Digitus chelæ ſubulatus, chela paulo longior, priori reſpondens.

Oculi 4:
Duo minimi approximati ſupra apicem. Solitarius utrinque ad latus thoracis.

Abdomen ovato-oblongum, ſupra & ſubtus gibbum, deſinente ano in tubum cylindricum.
Seta (non rufa, in omnibus) filiformis, rufa, longitudine corporis, conſtans articulis numeroſis.

Pedes 8, rufi præter chelas oris; horum
1, 2. longiſſimi, mutici.
3, 4, 5, 6 primo pari dimidio breviores.
7, 8. paulo craſſiores reliquis, ſed breviores primis, longiores ſecundo & tertio pare.

Facies Araneiæ, ſed oculi quatuor.
Scorponis, ſed abſque chelæ caudæ & pectine.
Acari, ſed oculi 4, & chelæ ramoſæ.

2.

2. PHALANGIUM antennis corpore longioribus, thorace reniformi. *Syſt. Nat.* 619. *n.* 3. reniforme.

Brown. jam. 409. *t.* 41. *f.* 3. Tarantula fuſca major, pedibus anterioribus craſſioribus aculeatis.

Habitat in *America* meridionali.

Corpus magnitudine Scarabei ſtercorarii, lividum ſ. fuſcum.

Thorax lævis, plano-convexus, reniformis, apice rotundatus, lateribus margine acuto, [illegible] a tergo & maxillis loco oris.

Maxillæ 2 parallelæ, apice ungve glabro inflexo ſubtus villoſo.

Oculi quatuor, quorum
2 approximati ad apicem thoracis ſ. frontis.
2 diſtantes a tergo thoracis verſus anteriora.

Antennæ pedibus anticis ſesquilongiores, ſetaceæ, diviſæ geniculis 2, in partes 3, quarum primus conſtat unico articulo, reliqui duo plurimis.

Abdomen ovatum, lividum.

Pedes Octo.
1. 2 corpore quadruplo longiores, ſetacei, nigri, mutici.
Articulo 1 breviſſimo craſſiore.
2 antice hiſpido, corpore longiore.
3 longitudine 2:di, vix hiſpidus, terminatus aculeis robuſtis, quorum 2 magni.
Digitus tertius ſpinis magnis inæqualibus.
3. 4. 5. 6. 7. 8. læves, inermes, pallidiores, corpore plus quam duplo longiores.

Femora ſex poſtica livida faſciis nigris.

A-

ARANEA.

avicularia. 1. ARANEA thorace orbiculato convexo: centro transverſe excavato. *Syſt. Nat.* 622. *n.* 26. *Muſ. Adolph-Frid.* 84.

Amœn. acad. 1. *p.* 323 *.

Seb. theſ. 1. *p.* 109. *t.* 69. *f.* 1. 2. 3.

Merian. amer. 18. *t.* 18.

Olear. muſ. 29. *t.* 17. *f.* 3.

Worm. muſ. 244. *t.* 244.

Cluſ. poſth. 47. *t.* 47.

Marcgr. braſ. 248.

Laet. amer. 5. 6. 9. *t.* 570.

Habitat in *America*.

Caput ſubtus rubrum.

Color corporis cinereus.

Pedum apices rufeſcentes.

Saccus ovorum albus, magnitudine Ovi gallinacei.

Pulli numeroſi parvi, pedibus villoſis, apicibus fuſcis.

flaviſſima. 2. ARANEA abdomine oblongo flaviſſimo lævi. *Syſt. Nat.* 622. *n.* 22.

Habitat in *Ægypto*. D. Haſſelquiſt.

Corpus oblongum.

Thorax glaber, fulvus: oculis confertis.

Pedes longi, glabri, flaviſſimi.

Abdomen obſcurius.

SCOR-

SCORPIO.

1. SCORPIO pectinibus 13-dentatis, manibus subcordatis pilosis. *Syst. Nat.* 624. *n.* 2. *Mus. Adolph-Frid.* 84. afer.

Seb. thes. 1. *p.* 112. *t.* 70. *f.* 4.

Habitat in *Africa.*

Chelæ cordatæ, sed exteriore latere minus, adspersæ Punctis eminentibus pilisque rectis.

Brachia angulata, punctis scabra.

Chelæ 2 minores ad os, acutius introrsum dentatæ.

Oculi ut in congeneribus.

Thorax antice profunde emarginatus.

Pectines dentibus 12, non 18.

Abdominis segmenta quatuor, subtus utrinque spiraculis linearibus.

Cauda segmentis 8, pilosis.

Mucro cheliformis caudæ pilosus.

2. SCORPIO pectinibus 18-dentatis, manibus angulatis. *Syst. Nat.* 625. *n.* 4. europæus.

Seb. thes. 1. *p.* 112. *t.* 70. *f.* 5. Scorpio surinamensis.

Habitat in *America.*

Corpus præcidenti longius, angustius.

Cetcrum structura eadem cum congeneribus.

Chelæ supra angulatæ, admodum angustæ.

CAN-

CANCER.

raninus. 1. CANCER brachyurus, thorace lævi integerrimo oblongo obovato: antice truncato-dentato. *Syſt. Nat.* 625. *n.* 2.

Rumph. muſ. 13. *t.* 7. *f. T. U.* Cancer raniformis.

Habitat in Mari *Indico.*

THORAX obovatus, antice transverſus, poſtice truncatus: Diſco convexo, imbricato papillis oblongis obſoletis (quaſi antrorſum imbricatis).

Margo anticus in 5 lacinias ſectus, quarum exteriores bipartitæ, trifido-palmatæ.

ROSTRUM, ſ. medium inter oculos, acutum ſimplex.

CAUDA aphylla, inflexa, ſed minus quam in reliquis, Articulis 6: extimo minimo acuto.

BRACHIA:

Manus compreſſæ, latere plano rugis ſerratis, margine exteriore dentibus 2; interiore ſerraturis 5 validis.

Digitus horizontaliter patentiſſimus, introrſum dentatus.

Pollex utroque margine dentatus.

PEDES octo.

Digiti ſolitarii ſemicordati.

Ciliata lana ſunt Pedes, Cauda, Corpus.

2.

2. CANCER brachyurus, thorace lævi integerrimo ovato glaberrimo, manibus ancipitibus lævibus. *Syſt. Nat. p.* 626. *n.* 7. craniolaris.

Rumph. muſ. t. 10. *f. A. B.* Cancellus anatum.

Pet. amb. t. 9. *f.* 3.

Habitat in *Aſia.*

TESTA magnitudine nucis Coryli, ovata, convexa, craſſiſſima, læviſſima, glaberrima abſque lacuna, cranii humani facie.

ROSTRUM obtuſum, prominulum, ſimum, ſummo apice vix tridentatum.

CAUDA inflexa, attenuata, articulis 3, quorum ſecundus in medio puncto acuminato.

BRACHIA ſubangulata, trifariam verrucis glabris nodoſa.

Manus læves, compreſſæ, ancipites, baſi retrorſum bidentatæ.

Digiti inermes, acuti, rectiuſculi.

PEDES octo, læves, non verrucoſi.

Planta anceps, latiuſcula.

Digitus ſubulatus glaber.

3.

philargius. 3. CANCER brachyurus, thorace lævi integerrimo convexo: poſtice quindecim dentato. *Syſt. Nat. p. 626. n. 8.*

Habitat in *Aſia.*

Habitus Calappoidis.

THORAX convexus, lævis, antice rotundatus vixque crenatus, ſupra depreſſionibus 2 longitudinalibus, Poſtice latiſſimus armatus dentibus 15.

ROSTRUM obtuſiſſimum, emarginatum.

CAUDA inflexa, aphylla.

BRACHIA:

Manus latiſſimæ, compreſſæ, baſi ſubtus dente armatæ. Supra compreſſæ in criſtam dentibus 8 parallelis.

Pollex altero pede baſi nodoſus, flectitur verſus manum fere truncatam, denatam.

Affinitas ſumma cum Calappoide *& forte varietas.*

4.

4. CANCER brachyurus, thorace lævi maculis sanguineis rotundis: lateribus unidentatis. *Syst. Nat. p.* 626. *n.* 10. maculatus.

Rumph. muſ. 18. *t.* 10. *f.* 1. Cancer ruber.

Pet. amb. t. 1. *f.* 8.

Seb. muſ. 3. *t.* 19. *f.* 12.

Habitat in *Aſia.*

THORAX convexus, pallidus, lævis, rotundatus, poſtice angulatior, margine integro: Dente obtuſo laterali.

Maculæ magnæ, rotundæ, ſanguineæ.

3. transverſim in medio.
2. transverſim ad baſin.
2. pone utrumque oculum.

ROSTRUM obtuſiſſimum inter oculos trilobum: medio emarginato.

CAUDA inflexa, aphylla.

BRACHIA:

Manus lævis, convexæ, obtuſæ, inermes, non angulatæ.

Pollex vix dentatus.

PEDES ut in congeneribus.

Digiti apice fuſci.

pelagicus. 5. CANCER brachyurus, thorace lævi utrinque unispinoso, fronte octo-dentata, manibus multangulo-prismaticis. *Syst. Nat. p.* 626. *n.* 11.

Rumph. mus. 11. *t.* 7. *f. R.* Pagurus.

Brown. jam. 421. *t.* 41. *f.* 2.

Habitat in *Universi* Fuco natante.

THORAX magnitudine insignis, latior quam longus, lævis punctis minimis, pallido-maculatus. Dentibus utrinque 8 inter oculos & spinam lateris.

ROSTRUM inter oculos breviſſimum: dentibus 5: intermedio depreſſiore.

CAUDA inflexa, aphylla, articulis 4, quorum:

1. breviſſimus, latiſſimus.
2. maximus baſi utrinque dilatatus.

BRACHIA thorace longiora, latere antico Aculeis 3 validis angulata, ſubprismatica.

Manus angulata, prismatica, baſi ſpina unica, ad digitum duabus.

Digitus rectus, longitudine manus, introrſum inæqualiter dentatus.

Pollex ſimilis digito.

PEDES inermes, octo.

Digiti ſoliitarii (3 primorum parium), enſiformes ſ. lanceolati, ſtria 1. ſ. 2.

Digitus ultimi ſ. 4:ti paris ovatus, membranaceus, reliquis latior.

6. CANCER brachyurus, thorace lævi utrinque ferrato-quadrilobo, manibus ovatis lævibus. *Syst. Nat. p.* 627. *n.* 13. lactatus.

Habitat in *Indiis*.

THORAX subrotundus, lævis, inæqualis, ruber albo maculatus.

Latera pone oculos. spinis dilatatis s. lobis 4, quorum anteriores latiores.

ROSTRUM inter oculos obsoletum, medio fere emarginato.

CAUDA inflexa, aphylla.

BRACHIA brevia.

Manus ovatæ, læves.

Digiti recti, fusci.

PEDES femoribus ancipites, latiusculi.

Digiti subulati, exteriore interioreque latere valde hirsuti.

Mænas. 7. CANCER brachyurus, thorace lævi utrinque quinquedentato, manibus ovatis, carpis dentatis, pedibus posticis subulatis. *Syst. Nat. p.* 627. *n.* 14.

It. Wgoth. 173.

Rumph. mus. 10. *t.* 6. *f.* 0. Cancer marinus lævis.

Pet. amb. t. 1. *f.* 5.

Seb. mus. 3. *t.* 18. *f.* 9.

Baster. subs. 2. *p.* 19. *t.* 2.

Habitat in Oceano *Europæo.*

THORAX convexus, subinæqualis, suborbiculatus, postice angustior, scaber: margo anticus rotundatus, acutus.

Serraturæ 5, validæ, subæquales, utrinque pone oculos.

ROSTRUM inter oculos obliteratum dentibus quinque.

CAUDA inflexa, aphylla articulis sex, quorum omnes lineares, nec tertius literam T refert, ut in penultima.

BRACHIA brevia, inermia.

Carpi unidentati.

Manus ovata, lævis, convexa.

Pollex latere angulis duobus obtusis.

Digiti recti.

PEDES teretiusculi, inermes.

Digiti subulati, striati.

Postremus digitus lanceolatus, acuminatus, nec ovatus.

Affinis ex structura præcedenti, sed ita refert sequentem primo intuitu; colore, magnitudine, habitu & omnibus, ut quivis assereret esse eundem.

8.

8. CANCER brachyurus, thorace lævi utrinque quinquedentato, manibus multangulis ovatis, carpis unidentatis. *Syſt. Nat. p.* 627. *n.* 16. feriatus.

Rumph. muſ. 10 *t.* 6. *f. P.* Cancer marinus ſulcatus.

Pet. amb. t. 1. *f.* 6.

Habitat in Mari *Indico.*

THORAX convexus, ſubſcaber, ſubinæqualis, ſubarticulatus, poſtice anguſtior.

Serraturæ 5, validæ, ſubæquales, pone oculos.

Margo anticus rotundatus, acutior.

ROSTRUM inter oculos breviſſimum Dentibus 5 ſubæqualibus acutis: extimis paulo minoribus.

BRACHIA brevia, inermia.

Carpus unidentatus.

Manus ovata, angulata ad digiti exortum dente uno.

Digiti recti.

PEDES inermes digitis ſolitariis.

Digiti trium parium, ſubulati, ſubtetragoni, compreſſi.

Digiti poſtici ovati, membranacei, reliquis latiores.

CAUDA inflexa, aphylla, articulis 5: articuli 1. 2. breviſſimi lineares; 3 literam T refert, ut in præcedente.

Feminæ cauda ovata, non trigona.

Affinis ita præcedenti, ut vix diverſus: Differt tantum

α. Brachiis Chelisque brevibus.

β. Brachiis non ſpinoſis.

γ. Roſtri aculeo intermedio acuto.

δ. Serraturis thoracis utrinque 5 tantum, nec poſtice in ſpinam extenſis.

Chabrus. 9. CANCER brachyurus, thorace hirto ſuborbiculato mutico, manibus ovatis muricatis. *Syſt. Nat. p.* 628. *n.* 19.

Habitat in Mari *Indico.*

THORAX ſuborbiculatus, planiuſculus, magnitudine nucis juglandis, tectus pilis brevibus ferrugineis.

Serraturæ laterales, pone oculos, 4, acutæ, validæ, antrorſum ſpectantes.

ROSTRUM inter oculos breviſſimum Spinis 3, æqualibus: intermedia rotundata depreſſa.

CAUDA deflexa, aphylla.

BRACHIA brevia, muricata.

Manus ovatæ, ſulcatæ, muricatæ tuberculis minimis.

Pollex rectus.

PEDUM femora ovata, compreſſa, latiora, antrorſum ſerrata.

Digiti ſimplices, ſubtus biſariam aculeati.

10.

10. CANCER brachyurus, thorace hirſuto ovato tuberculato, roſtro bifido, manibus ovatis. *Syſt. Nat. p.* 628. *n.* 20. *Fn.* 2030. Araneus.

Muſ. Adolph-Frid. 85.

It. ſcan. 312.

Jonſt. exſang. t. 5. *f.* 13.

Habitat in Oceano *Europæo.*

TESTA ovata, convexa, ſubinæqualis, adſperſa punctis inæqualibus, prominentibus.
Dens compreſſus pone oculos.

ROSTRUM prominens inſtar forficis, ovatum, bipartitum.

BRACHIA inermia, teretia.
Manus ovatæ, baſi retrorſum bidentatæ.
Digitus rectus, glaber.

PEDES poſtici paulo longiores, adſperſi pilis.
Digitus ſubulatus, rubens.

Cuphæus. 11. CANCER brachyurus, thorace villoſo ovato antice obtuſo, poſtice tridentato. *Syſt. Nat. p.* 628. *n.* 21.

Rumph. muſ. t. 10. *f. D?*

Habitat in Oceano *Indico.*

THORAX magnitudine nucis avellanæ, latere linea elevata muricata vix conſpicua; antice ſubvillolus, poſtice loco ani denticulis tribus: intermedio majore.

ROSTRUM ſimum, obtuſiſſimum, ad baſin uno denticulo utrinque.

CAUDA ovata, inflexa.

BRACHIA & Chelæ deſunt in ſpecimine.

PEDES 8, læves.

12.

12. CANCER brachyurus, thorace aculeato, manibus corpore longioribus: digito patulo; pollice curvato. *Syſt. Nat. p. 629. n. 25.* longimanus *Mas.*

Rumph. muſ. 16. *t.* 8. *f.* 3. Cancer longimanus minor.

Pet. amb. t. 2. *f.* 15.

Seb. muſ. 3. *t.* 20. *f.* 12.

Habitat in Mari *Indico.*

THORAX lato-ovatus, inæqualis, adſperſus punctis concavis; dorſo utrinque ſpina 1, erecta, obtuſa, elevata.

Margo lateralis obtuſe crenatus.

ROSTRUM ſ. Frons obtuſiuſcula, canaliculato-concava, obſolete ſerrata.

CAUDA ſenſim extrorſum anguſtior, articulis 6. ſ. 7, penultimo in medio ſpina notato.

BRACHIA angulata, adſperſa ſpinis conicis.

Manus corpore toto duplo longiores.

Digitus patulus.

Pollex curvatus, ut etiam digitus baſi curvatus.

Differt a ſequenti Femina

Spinis non echinatis.

Cauda non ovata.

Thorace punctis excavatis.

CANCER *(forte idem cum præcedenti).* longimanus *Femina.*

Rumph. muſ. 16. *t.* 8. *f.* 2.

THORAX lato-ovatus, inæqualis, adſperſus undique ſpinis verrucoſis.

ROSTRUM ſ. Frons depreſſa, inter oculos deſinens in roſtrum depreſſum, dentatum.

CAUDA ovata, inflexa, aphylla, articulis 7.

BRACHIA ſubangulata, adſperſa ſpinis ſubulatis echinatis.

Manus corpore toto duplo longiores.

Digitus patulus, cum pollice introrſum nodoſus.

Pollex curvatus.

PEDES teretiuſculi, anguſti, ratione corporis parvi.

Digiti ſimplices, villoſi.

horridus. 13. CANCER brachyurus, thorace obtuſe aculeato, manibus ovatis, cauda carioſa.
Syſt. Nat. p. 629. n. 26.
Rumph. muſ. 16. t. 9. f. 1.
Pet. amb. t. 1. f. 7.
Habitat in *Indiis.*

THORAX magnitudine pugni, depreſſionibus inæqualibus, undique verrucoſus tuberculis muricatis inæqualibus.
ROSTRUM Fronte profunde retuſa, ſubtus ſima obtuſa.
CAUDA inflexa, aphylla, ovata, valde lacunoſa & quaſi carioſa.
BRACHIA ſpinis thoracis ſimilibus exaſperata.
Manus ovatæ, vix angulatæ, convexæ, verrucoſæ, baſi retrorſum bidentatæ.
Digitus fere rectus.
PEDES ſpinis obtuſis undique obvallati.
Digiti ſimplices typhini ſ. pubeſcentes.

horridus. CANCER (*præcedentis varietas*).

THORAX cordato-triangularis, admodum inæqualis, excavatus ſcrobibus & lacunis, adſperſus punctis excavatis & punctis convexis apice nodoſis ſ. verrucoſis.
ROSTRUM fere nullum. Frons cavitate retuſa, ſubtus obtuſa, ſimplex.
CAUDA cicatricibus excavatis lacunoſa, ovata, articulis 7 linearibus, ſexto reliquis duplo latiore.
BRACHIA:
Manus convexæ absque angulis, admodum inæquales, a latere interiore ſ. ſuperiore criſtatæ, digito patulo.
PEDES Octo absque verrucis.
Digiti typhini ſ. villoſi.
Horrendum & monſtroſum animal.

14.

14. CANCER brachyurus, thorace aculeato: rostro bifido cristato, manibus teretibus. *Syst. Nat. p.* 619. *n.* 27. cristatus.

Rumph. mus. 15. *t.* 8. *f.* 1. Cancer spinosus prior.

Pet. amb. t. 3. *f.* 11.

Habitat in Mari *Asiatico.*

THORAX ovatus, obtusus, antice angustior.

Spinæ distantes, numerosissimæ, rectæ per marginem & discum convexum.

Aculei numerosi, parvi, subæquales inter spinas.

Oculi cincti spinis binis, dilatato-cristatis.

ROSTRUM semibifidum, planiusculum, mutans.

CAUDA linearis, inflexa, obtusa articulis 7: primo brevissimo; reliquis transverso-linearibus.

BRACHIA cylindrica.

Manus oblongæ, teretiusculæ punctis elevatis, basi Dentibus 2 obtusis reflexis.

PEDES cylindrici, apice obsolete tridentati, punctis elevatis adsperſi.

ſupercilioſus. 15. CANCER brachyurus, thorace aculeato: ſpinis ocularibus ramoſo-trifidis, manibus teretibus. *Syſt. Nat. p. 629. n. 28.*

Habitat in Mari *Indico.*

TESTA ovata, oblonga, parva, valde inæqualis ſ. verrucoſa, antice anguſtior, cincta Spinis ſubulatis, obtuſis, erectiuſculis, 4 ſ. 5 utrinque ad marginem, 2 in ſummo dorſo.

Antice thorax exit in 3 ramos, quorum medius depreſſior, inflexus, oblongus, ſemibifidus, divaricatus pro Roſtro.

Laterales rami oblongi, ſemitrifidi, obtuſi, ramis cylindricis, ſub quibus oculi.

CAUDA rotundo-ſubovata articulis 5; quorum 1. 2. 3 breves, lineares; 4 maximus, gibbus; 5 triqueter.

BRACHIA inermia.

Manus teretiuſculæ, ſimplices, læves, baſi ſpinis 2 retroflexis obtuſis.

PEDES læves, pilis raris adſperſi, articulis apice ſubtridentatis.

Digitus ſimplex, ſubulatus, acutus.

Affinitas ſumma cum C. criſtato & Chelarum baſis bidentata utrique.

16.

16. CANCER brachyurus, thorace aculeato: roſtro ſpinis corniformibus barbatis, manibus teretibus. *Syſt. Nat. p. 629. n. 29.* cornutus.

Habitat in Mari *Indico.*

THORAX ovatus, adſperſus punctis acuto-ſpinoſis.

Latera utrinque ciliata ſpinis 6, validis.

Diſci ſpinæ 3 transverſæ & una anterior; omnes erectæ, reliquis æquales.

Spinæ 2 minores, erectiuſculæ, ad baſin thoracis.

ROSTRI loco Spinæ 2 inter oculos, reliquis majores, erectiuſculæ, diſtantes, ſubtus barbatæ.

Roſtrum ſubtus inter oculos, acutum, reflexum; & duæ ſpinæ coadunatæ juxta oculos.

CAUDA inflexa, ovata, articulis 7. linearibus.

BRACHIA teretia, lævia, glabra, nuda.

Manus pedibus reliquis minores, baſi extrorſum bidentatæ.

PEDES toti hirſuti, piloſi.

Digitus hirſutus.

17.

longipes. 17. CANCER brachyurus, thorace aculeato, manibus ovatis ſcabris, pedibus poſterioribus longiſſimis. *Syſt. Nat. p.* 629. *n.* 30.

Rumph. muſ. t. 8. *f.* 4. Cancer arachnoides.

Habitat in Mari *Indico.*

Testa ſubcordata, depreſſa, gibba, magnitudine pruni.

Spinæ 4 altiores a tergo, quarum quarta anterior.

Spina acuta pone oculos.

Rostrum bifidum, acutum.

Cauda inflexa, aphylla.

Brachia craſſa, muricata, brevia.

Manus ovatæ, non angulatæ, gibbæ, muricatæ.

Digitus ſubtriangularis, rectiuſculus.

Pedes longiſſimi, teretes, inermes.

Digitus ſubulatus, ſubvilloſus.

18.

18. CANCER brachyurus, thorace poſtice uni-aculeato inæquali, pedibus ſecundi paris longiſſimis. *Syſt. Nat. p.* 629. *n.* 31. ſpinifer.

Rumph. muſ. t. 8. *f.* 3?

Habitat in *Aſia.*

THORAX ovatus inæqualis, ſubvilloſus, poſtice dente erecto terminatus; dens utrinque verſus pectus.

ROSTRUM lineare apice bifido.

BRACHIA linearia, glabra. Chelæ lineares, læves.

PEDES longi, ſed 2:di paris (ſ. inter octo primores) longiſſimi omnium.

19.

hepaticus. 19. CANCER brachyurus, thorace verrucoſo gibbo ſemiorbiculato: margine ſerrato. *Syſt. Nat. p.* 630. *n.* 33.

Habitat in *Aſia*.

Habitus C. Calappoidis, *ſed minor*, *& forte ſola varietas.*

Thorax ſupra inæqualis, tuberculis adſperſus, margine undique ſerratus, excepto poſtico latere ſcabro.

Rostrum breviſſimum, inter oculos emarginatum.

Cauda inflexa, aphylla: extimo articulo attenuato.

Brachia brevia.

Manus Callappæ, compreſſæ, tuberculatæ, criſtatæ ſuperiore margine 7. ſ. 8 ſpinis.

Digitus exit in angulum patulum.

Pollex brevis, altero pede baſi undoſus.

Affinis admodum C. Calappoidi, ut vix ſpecie differant, inprimis differt:

Rugis thoracis in tubercula elevatis.

Thorace non trilobo.

Lobis lateralibus thoracis etiam ſerratis.

20.

20. CANCER brachyurus, thorace ſtrigis ſubimbricato gibbo trilobo. *Syſt. Nat. p.* 630. *n.* 34. Calappa.

Rumph. muſ. 21. *t.* 11. *f.* 2. 3. Cancer calappoides.

Seb. muſ. 3. *t.* 20. *f.* 7, 8.

Habitat in *Aſia.*

THORAX valde convexus, poſtice latiſſimus, ſuperficie ſubimbricata ſtriis ſparſis transverſalibus, antice trilobus: intermedio obtuſe crenato.

ROSTRUM, inter oculos, breve, bidentatum.

CAUDA inflexa, aphylla extimo ovato.

BRACHIA:

Manus latiſſima, antice latior, truncata absque digito, ſupra compreſſa in criſtam dentatam.

Pollex (in dextro pede baſi nodoſus) flexus verſus manum truncatam denticulatam.

PEDES teretes, inermes, anguſtiores.

Digiti ſubulati, ſulcati.

Chelæ *manuum ſingulari artificio affiguntur Brachiis, tanquam Cardinibus* 2, *charnieres dictis.*

ſcrupoſus. 21. CANCER brachyurus, thorace tuberculato planiuſculo margine aculeato, chelis margine inferiore criſtatis.

Habitat in *Indiis.*

Structura horrenda apparet foſſilis & ſcrupoſa.

THORAX transverſus ovalis, eminentiis inæqualis, tuberculis exaſperatus.

Margo depreſſus, acutus, inæqualiter dentatus.

ROSTRI loco cicatrix, oſſis inſtar carioſi & corrupti.

CAUDA inflexa, aphylla, excavata uti totum corpus ſcrobiculis excavatis.

BRACHIA triangula, angulis dentatis.

Manus (affixæ cardinibus uti in Calopoda) compreſſæ, margine inferiore dentato, ſubcriſtato; hinc chelæ antice latiſſimæ truncatæ.

Pollex baſi poſtice mutilatus, utrinque crenatus.

PEDES angulati, compreſſi, dentati.

Digiti parum compreſſo-angulati, dentati.

Affinitas & ſtructura tota omnium partium Calopodæ, *ut paucis differat; differt autem ſequentibus.*

α. Chelæ non antice, ſed poſtice criſtatæ.

β. Pollex dexter non latere appendiculatus.

γ. Thorax planus, margine acuto depreſſus.

δ. *Totum animal carioſum ſcrupoſumque ac ſi foſſile diuturno ævo exeſum fuiſſet.*

22. CANCER brachyurus, thorace rugoſiſſimo obtuſo utrinque quadrilobo. *Syſt. Nat.* 630. *n.* 36. æneus.

Rumph. muſ. 18. *t.* 11. *f.* 4? Cancer æneus.

Habitat in *Indiis*.

THORAX albidus, poſtice anguſtatus, ſupra imbricatus convexitatibus obtuſis inæqualibus.

Latera utrinque Lobis 4 obſoletis: poſtico acutiore.

ROSTRUM obtuſum, emarginatum, inter oculos.

BRACHIA:

Manus rugoſæ, inermes.

Pollex ſulcis 2 ſupra exaratus.

Digiti æquales, fuſci, introrſum dentati, apice fornicati.

Varietas forte antecedentis, certe maxime affinis, a quo differt colore albo. Thorax, chelæ, brachia loco macularum rugis numeroſiſſimis obtecta.

dorſipes. 23. CANCER brachyurus, thorace rugoſo ovali: antice ſerrato ciliato, pedibus poſticis dorſalibus. *Syſt. Nat. p.* 630. *n.* 38.

Rumph. muſ. t. 10. *f.* 3. Pediculus marinus.

Pet. amb. t. 6. *f.* 2.

Habitat in *Indiis*.

Thorax ovatus, inæqualiter rugoſus, nodoſus.

Margo anticus truncatus, terminatus Spinis ſex æqualibus.

Oculi intra extimas ſpinas.

Cauda inflexa, anguſtata, articulis 7:

Articulus 1 inermis; 2. 3. ſpinis tribus parallelis; 4 ſpina unica; 5 ſpina una minore; 6 acutus.

Brachia adſperſa punctis elevatis.

Manus ovatæ, læves.

Pedes octo, quorum

3. 4. 5. 6. pone brachia ſubtus collocati.

7. 8. 9. 10 collocati a tergo, ſupra præcedentes.

Digiti ſolitarii, arcuati, ſubulati, læves.

24.

24. CANCER ſubbrachyurus, thorace ſubcylindrico ciliato-ſerrato, chelis cordatis, antennis ciliato-piloſis. *Syſt. Nat.* 630. *n.* 39. Symmyſta.

Habitat in *India*.

THORAX ſemicylindricus, oblongiuſculus Rugis transverſis inæqualibus.

Latera æqualia, aucta ſpina antrorſum ſpectante.

Margo anticus obtuſiſſimus, ſerratus, quaſi ciliatus ſpinis minimis cum emarginatura ab utroque latere:

Foliola 2 (ſimul ovata) intra emarginaturam antrorſum ſpectantia.

ANTENNÆ corpore longiores, utrinque ciliatæ pilis.

CAUDA articulis 6, quorum 2 reliquis latiores; 1 & 4. lateribus breviſſimi.

BRACHIA inermia.

Manus cordatæ, piloſæ.

Pollex ſubulatus, arcuatus, inermis, acuminatus ad baſin anteriorem.

PEDES octo.

Plantæ bifidæ, ciliatæ:

Lobus anterior breviſſimus, obtuſus.

Lobus poſterior longior, falcatus.

Bernhardus. 25. CANCER macrourus parasiticus, chelis cordatis lævibus: dextra majore. *Syst. Nat. p.* 631. *n.* 40.

Mus. Adolph. Frid. 88. Cancer Eremita.

Faun. suec. 1250; 2032.

Rondel. pisc. 1. *p.* 533. Cancellus.

Bellon. aquat. 362. Cancellus.

Gesn. aquat. 161. Cancellus.

Aldrov. exsangv. 218. Cancellus.

Worm. mus. 250. Cancellus s. Bernhardus eremita.

Margr. bras. 188. Gammarus in concha degens.

Sloan. jam. 2. *p.* 271. Cancellus s. Scyllarus.

Rumph. mus. 1. *t.* 5. *f* K. L.

Swamm. bibl. t. 11. *f.* 1. 2.

Baster. subs. 1. *p.* 74. *t.* 10. *f.* 3, 4.

Habitat in *Oceano* fere universo intra Testas Cochlearum.

26.

26. CANCER macrourus, thorace rugoſo ovali, manibus compreſſis margine ſpinoſis. *Syſt. Nat. p.* 632. *n.* 49. Canchrus.

Habitat in *Indiis*.

THORAX ovalis, transverſim ſubrugoſus, poſtice truncatus, marginibus Spinis acutis ſeriatis antrorſum ſpectantibus.

ROSTRUM lanceolatum depreſſum mucronatum Spinis utrinque 3 inſtructum.

CAUDA pentaphylla, articulis 5 latere marginatis.

Foliola margine piloſa: intermedio emarginato.

BRACHIA ſpinoſa.

Chelæ oblongæ depreſſæ, utrinque Dentibus acutis ciliatæ.

Digiti æquales recti, introrſum piloſi.

PEDES læves, genu ſpina unica.

Plantæ ſubulatæ, hirſutæ.

norvegicus. 27. CANCER macrourus, thorace antrorſum aculeato, manibus prismaticis: angulis ſpinoſis. *Syſt. Nat. p.* 632. *n.* 51.

Muſ. Adolph. Frid. 88. *Faun. ſucc.* 2039.

It. ſcan. 327. Cancer cæſareus.

Seb. muſ. 3. *t.* 21. *f.* 3.

Habitat in Mari *Norvegico.*

THORAX oblongus teretiuſculus marginibus integris; antice a tergo adſperſus Spinis parvis antrorſum ſpectantibus.

ROSTRUM thoracis ſubulatum, acuminatum, recta protenſum, ad latera ſupra ſpinoſum, ſub apice notatum ſpinis duabus.

CAUDA thorace longior, articulis 6: lateribus acutangulis, pentaphylla, ſubæqualis.

Foliola angulo dentata, margine ciliata.

BRACHIA dentata.

Chelæ thorace longiores, tetragonæ angulis antrorſum obtuſe dentatis ſerie fere duplici.

PEDES octo inermes teretes.

Digiti duo recti ciliati.

28.

28. CANCER macrourus, thorace antrorſum aculeato, manibus adactylis. *Syſt. Nat. p.* 633. *n.* 52. Homarus.

Rumph. muſ. 2. *t.* 1. *f. A.* Locuſta marina indica.

Pet. amb. t. 6. *f.* 1.

Seb. muſ. 3. *t.* 21. *f.* 5.

Habitat in *India* utraque.

THORAX oblongus, ſubcylindricus, nigro luteoque varius, adſperſus Spinis antrorſum ſpectantibus.

ROSTRUM acuminatum, compreſſum, ſupra ſerratum.

Aculei ſupra oculos duo majoresque recurvati.

ANTENNÆ ſub oculis maximæ, ſpinis verticillatæ.

Palpi intra antennas, 2, minores, bifidi, inermes.

CAUDA longa, articulis 6, pentaphylla.

Foliola baſin verſus ſpinulis ſubimbricatis.

BRACHIA pedibus ſimillima.

Chelæ pedibus ſimillimæ, monodactylæ, anguſtiſſimæ, piloſæ.

PEDES octo, læves geniculis ſpinoſis.

Digitus ſimplex, piloſus.

Mantis. 29. CANCER macrourus articulatus, manibus adactylis compreſſis falcatis ſerrato-dentatis. *Syſt. Nat. p.* 633. *n.* 54.

Muſ. Ad. Fr. 1. *p.* 86.

Rumph. muſ. 4. *t.* 3. *f. E.* Squilla arenaria terreſtris.

Seb. muſ. 3. *t.* 20. *f.* 2, 3.

Habitat in *Amboina.*

30. CANCER macrourus articulatus, manibus adactylis ventricosis rectis angulatis introrsum tridentatis. *Syst. Nat. p.* 633. *n.* 55. Scyllarus.

Rumph. mus. 5. *t.* 3. *f. F. G.* Squilla marina arenaria.

Habitat - - - -

Chela tantum ex hoc animalculo in Museo occurrit.

MO-

MONOCULUS.

Polyphemus.

1. MONOCULUS testa plana convexa futura lunata, postice dentata, cauda subulata longissima. *Syst. Nat.* 634. *n.* 1.

Clus. exot. l. 6. *c.* 14. Cancer moluccanus.

Jonst. t. 7. *f.* 1. 2. Cancer moluccanus.

Olear. mus. 54. *t.* 28. *f.* 1. 2. Cancer moluccanus.

Bont. jav. l. 5. *c.* 31. Cancer perversus.

Rumph. mus. 21. *t.* 21. Cancer perversus.

Habitat in *India*.

Clypeus valva duplici.

Prior major suborbiculata, convexa, postice excavato-lunaris in angulos 2 acutos, margine elevato circumcincta.

Posterior in sinu prioris valvulæ collocata, lato-emarginata, lateribus acute serrata.

Dorsus lanceolatus, ciliatus, ex singula serratura.

Dorsi 2 quasi puncta 2 callosa, in medio dorsi valvæ prioris.

Puncta excavata 6 parium, in tergo valvulæ posterioris versus basin.

Rostrum trigonum, subulatum, acutum, toto corpore longius, osseum valvulam secundam terminat.

Pedes 12, articulo primo introrsum aculeato.

1. 2. minimi chelis rectis.
3. 4. chelæ crassiores, breves:
in quibusdam digito & pollice recurvato.
5. 6. chelis angustis rectis.
7. 8. majores absque chela, terminati digito:

Digitus subulatus, cinctus squamis 4 lanceolatis

SCO-

SCOLOPENDRA.

1. SCOLOPENDRA pedibus utrinque XX. morſitans; *Syſt. Nat. p.* 638. *n.* 5.

Muſ. Adolph-Frid. 89. Scolopendra indica.

Amœn. acad. p. 325, 506. Scolopendra plana, pedibus utrinque viginti.

Pet. gaz. t. 20. *f.* 2. Scolopendra capenſis major luteſcens, cauda longiore.

Friſch. inſ. 11. *p.* 18. *t.* 2. *f.* 7.

Olear. muſ. 21. *t.* 12. *f.* 5.

Seb. theſ. 1. *p.* 130. *t.* 81. *f.* 3. Millepeda africana.

Leuwenh. epiſt. 102.

Bradl. nat. 31.

Habitat in *Indiis.*

JU-

JULUS.

indus. 1. JULUS pedibus utrinque CXV. *Syſt. Nat. p.* 639. *n.* 4.

Muſ. Adolph-Frid. 1. *p.* 90.

Amœn. acad. 1. *p.* 324. Scolopendra pedibus 96.

Seb. muſ. 1. *t.* 81. *f.* 5.

Habitat in *Indiis.*

Corpus cylindricum, teres, longius digito, craſſitie pennæ, ferrugineum, glabrum, articulis 56 circiter, quaſi duplicatis.

Antennæ flaveſcentes articulis 5.

Pedes flavi, ultra centum circiter, ad ſingulum ſegmentum duo.

Caudæ articulus compreſſo-lenticularis, fiſſus.

Pars

Pars II.

TESTACEA.

Magna ſunt opera JEHOVÆ,
ſtupenda quibuscunque placent!

David. Pſalm. CXI: 2.

CONCHÆ α. *Chiton.*
Lepas.
Pholas.
Mya.

β. *Solen.*
Tellina.
Cardium.
Donax.
Venus.
Spondylus.
Chama.
Arca.
Oſtrea.
Anomia.
Mytilus.
Pinna,

COCHLEÆ α. *Argonauta.*
Nautilus.
Conus.
Cypræa.
Bulla.
Voluta.
Buccinum.
Strombus.
Murex.
Trochus.
Turbo.
Helix.
Nerita.
Haliotis.

β. *Patella.*
Dentalium.
Serpula.

CHITON.

1. CHITON teſta octovalvi ſemiſtriata, corpore ſquamuloſo. ſquamoſum.

Testa ovali-oblonga, valde convexa, dorſata: valvulis 8, transverſis, in medio poſtice ſubangulatis, latere poſtico in formam lanceolatam utrinque ſtriatis & poſtico margine verſus latera punctis aliquot nigris notatis.

Subtus ſ. intus teſta eſt viridi-cærulea.

Corpus animalculi tectum corio ſquamoſo: ſquamis minutiſſimis, ſubimbricatis, ovatis, albis.

LEPAS.

Balanus. 2. LEPAS testa conica sulcata, operculis acuminatis. *Syst. Nat.* 10. *p.* 667. *n.* 5. *It. Wgoth.* 170. *Fn. suec.* 2122.

Act. angl. 1758. *t.* 34. *f.* 17.

Baster misc. 127. *t.* 12. *f.* 7-10.

TESTA conica, truncata: valvulis pluribus conniventibus; Extus inæqualiter sulcata interjectis rugis compressis.

OPERCULUM valvulis quatuor, obliquis, acuminatis: superioribus 2, latioribus, brevioribus, transverse striatis; inferioribus 2, angustioribus, longioribus.

Tintinnabulum. 3. LEPAS testa conica rugosa obtusa. *Syst. Nat.* 668. *n.* 6.

Rumph. mus. t. 41. *f. A.*

Gualt. test. t. 106. *f. H.*

Argenv. conch. t. 30. *f. A.*

Act. angl. 1758. *v.* 2. *t.* 34. *f.* 8.

TESTA conico-gibba, extus sulcata sulcis obtusis, areis valvularum apicibus interjectis senis, transverse striatis.

4.

4. LEPAS teſta plano-convexa: radiis ſex excavatis ſtriatis. *Syſt. Nat.* 10. *p.* 668. *n.* 7. teſtudinaria.

Rumph. muſ. t. 40. *f. K.* Verruca teſtudinaria.
Gualt. teſt. t. 106. *f.* 5.
Ginan. adr. 41. *t.* 30. *f.* 175.

Testa ovali-ſuborbiculata, leviter convexa, glabra, albida, radiata Radiis ſex, ab apertura ad marginem ſubulatis, excavatis, transverſe ſtriatis.

Subtus conſtans laminulis numeroſis, inæqualibus, ſerrulatis.

Apertura clauſa valvulis ſex, obtuſis, conniventibus in rimam longitudinalem.

5. LEPAS teſta compreſſa erecta difformiter ſtriata baſi imbricata. *Syſt. Nat.* 668. *n.* 8. Mitella.

Rumph. muſ. t. 47. *f. M.*
Argenv. conch. t. 30. *f. E.*
Seb. muſ. 3. *t.* 16. *f.* 3.
Act. angl. 1758. *v.* 2. *t.* 34. *f.* 4.

Testa compreſſa: valvulis octo, quarum 4 interiores bifariam conniventes.

2. anteriores majores.
2. poſteriores breviores.

Exteriores quatuor, quarum Anterior Poſteriorque cymbiformes, incurvæ.

Poſterior brevis. Laterales duæ triangulares adpreſſæ.

Inſuper ſquamæ plurimæ, parvæ, baſin teſtæ cingentes.

Baſis tubuloſa, imbricata ſquamis minutis.

Valvulæ omnes difformiter, fere ad angulum acutum, ſtriatæ.

anatifera. 6. LEPAS testa compressa quinquevalvi lævi intestino insidente. *Syst. Nat.* 10. *p.* 668. *n.* 9. *Fn. Suec.* 2120.

Gualt. test. t. 106. *f. A -- D.*

Argenv. conch. t. 30. *f. I. G.*

Seb. mus. 3. *t.* 16. *f.* 1, 2.

Act. angl. 1758. *v.* 2. *t.* 34. *f.* 6.

Testa compressa valvulis duabus majoribus subtriangularibus, conniventibus; singulis acutis, latere altero versus apicem, valvula oblonga.

Valvula insuper quarta lanceolata, cymbiformis, loco carinæ.

Basis cylindrica, membranacea, intestiniformis.

PHO-

PHOLAS.

7. PHOLAS teſta oblonga undique ſtriis decuſſatis muricata. *Syſt. Nat.* 10. *p.* 669. *n.* 13. candidus.

Bonan. recr. 2. *t.* 24.

Gualt. teſt. t. 105. *f. E.*

Testa vix digiti longitudine, ovato-oblonga, alba, diaphana, ſupra fere tota transverſe & longitudinaliter elevato-ſtriata decuſſationibus mucronatis; unde ſcabra.

Intus decuſſatim excavato-ſtriata decuſſationibus impreſſis.

Cardo ex lacinula lævi, arcte reflexa (acceſſoria valvula deficit in ſpeciminibus).

8. PHOLAS teſta ovali hinc obtuſiore criſpato-ſtriata, cardinis dente curvo. *Syſt. Nat.* 10. *p.* 670. *n.* 15. *ſub Mya. Fn. ſuec.* 2125. criſpatus.

Liſter. angl. t. 5. *f.* 38. *& app. t.* 2. *f.* 7.

Testa rudis, opaca, ovata, reliquis craſſior magisque gibba; utraque extremitate hiante; altera obtuſiſſima vix ſtriata, diſtincta ſutura concava transverſa; altera vero acutiore, ſtriis imbricatis ſubſerratis rugoſa.

Cardo reflexus, lævis, appreſſus; at vero intus Dente lineari, incurvo, ſub natibus poſito.

Accessoria teſta ad cardinem exigua *Liſter*; *hujus ideoque generis.*

MYA.

lutraria. 9. MYA testa oblongo-ovata, cardinis dente depresso parallelo rotundato denticuloque erecto emarginato. *Syst. Nat.* 10. *p.* 670. *n.* 18. *En. succ.* 2128.

Lister. angl. 170. *t.* 4. *f.* 19.

TESTA alba, oblongo-ovalis, crassiuscula, vix transversim striata, utraque extremitate parum dehiscens.

CARDO extus natibus minutis; intus singulæ valvulæ constans lamina rotundata, introrsum versa, concava; In altera testa juxta hunc cardinem est squamula erecta, complicata, cui in opposita testa respondet squama erecta, plana.

Pernа. 10. MYA testa oblonga dilatata: basi angustiore compressa. *Syst. Nat.* 10. *p.* 671. *n.* 21.

Argenv. conch. t. 25. *f. N.*

TESTA perniformis, lævis, violaceo-albida. Margo dorsalis dilatatus. Apex terminat testam subcompressus, nec latera ad apicem dilatata sunt.

CARDO intra apicem constans Fossula transversa cum *dente* unico.

11.

11. MYA teſta linguiformi, cardine terminali depreſſo ſemiorbiculato. *Syſt. Nat.* 10. *p.* 671. *n.* 22. Vulſella.

Muſ. Teſſin. t. 6. *f.* 3.

Testa oblonga, utrinque obtuſa, parum admodum convexa, lævuſcula, livida: Lineis fuſcis, longitudinalibus, flexuoſo-repandis. *Intus* colore margaritaceo, tenuiſſimo.

Cardo terminalis conſtans *ſquama* craſſa, verſus interiora flexa, concava, rotundata.

SOLEN.

Vagina. 12. SOLEN testa lineari recta: extremitate altera marginata, cardinibus unidentatis. *Syst. Nat.* 10. *p.* 672. *n.* 23.

Rumph. mus. t. 45. *f. M.*

Gualt. test. t. 95. *f. D.*

Argenv. conch. t. 27. *f. K.*

Testa linearis, glabra, convexa, striis obsoletis, ab extremitate truncata longitudinaliter ductis, sed versus rotundatam extremitatem curvatis desinentibus in futuram cardinis.

Superficies externa epidermide decidua tecta, interne glabra magisque rufescens.

Extremitas postica crassior, oblique extrorsum truncata; antice vero rotundata.

Cardo versus angulum posticum Dente unico, erecto, semiovato.

Hymen anterius connectit testas $\frac{1}{5}$ longitudinis, sub quo Callus ejusdem longitudinis obtusus.

13. SOLEN testa lineari recta, cardine altero bidentato. *Syst. Nat.* 10. *p.* 672. *n.* 24. *Fn suec.* 2131. *Gualt. test. t.* 95. *f. C.* *Argenv. conch. t.* 27. *f. M.* Siliqua.

TESTA linearis, extremitate utraque truncata, hiante; glabra, convexa; extus linea ab angulo baseos ad exteriorem angulum apicis ducta: area exteriore livida, longitudinaliter substriata; posteriore pallida, transversim substriata.
Extremitas utraque truncato - rotundata: postica crassiore.
CARDO ad angulum posticum *Dente* unico, subulato, in altera testa; in altera vero Dentibus duobus, subulatis, parallelis, approximatis, qui inter se excipiunt oppositum dentem.
HYMEN anterius connectit testas $\frac{1}{4}$ longitudinis. *Callus* elevatus, acutiusculus ante dentes, membrana dimidio brevior, ad marginem interiorem testarum a dentibus sub membrana extensus.

14. SOLEN testa lineari subarcuata, cardine altero bidentato. *Syst. Nat.* 10. *p.* 672. *n.* 25. *List. angl. app. t.* 2. *f.* 9. Ensis.

TESTA antecedentibus angustior, utraque extremitate truncata, linearis, parum admodum recurvata versus futuram posticam, tecta extus epidermide decidua; glabra, convexa, in medio transversim, ad latera vero longitudinaliter striata, ita tamen, ut area anterior versus basin latior evadat. *Intus* pallida est.
Extremitas utraque rotundata, postica crassiore.
CARDO dentibus ut in priore. *Callus* ut in præcedenti.
HYMEN connectens cardinem ad $\frac{1}{3}$ longitudinis.
VARIETAS forte sola præcedentis, sed plerumque minor.

Cultellus. 15. SOLEN teſta ovali-oblonga ſubarcuata. *Syſt. Nat.* 10. 673. *n.* 27.

Rumph. muſ. 45. *f. F.*

Gualt. teſt. 90. *f. E.*

TESTA ovali-oblonga, triplo longior quam lata, lævis, lateribus præſertim exterioribus maculata, violacea, ceterum livida; parum admodum curvata verſus ſuturam poſticam, parum convexa, ſtriata, oblongo-rotundata verſus apicem.

Extremitas utraque rotundata, hians.

CARDO *Dentibus* ut in N. 13, cui adhæret Callus mucronatus ad margines anteriores, omnino ut in ſpecie 12.

radiatus. 16. SOLEN teſta ovali recta lævi, coſta transverſali adnata depreſſa. *Syſt. Nat.* 10. *p.* 673. *n.* 28.

Rumph. muſ. t. 45. *f. E.*

Gualt. teſt. t. 91. *f. R.*

Argenv. conch. t. 25. *f. P.*

TESTA ovalis, nonnihil oblonga, utrinque hians, tenuis, ſubdiaphana, lævis, transverſim ſubtiliſſime ſtriata, violacea *Radiis* utrinque 4, albis, a cardine exeuntibus, quorum qui maxime transverſalis latior reliquis.

CARDO *dente* unico, erecto in altera teſta; duobus vero in oppoſita; a dentibus, tam antrorſum quam retrorſum, ad ſuturam internam margo elevatus extenditur; at vero a dentibus per diſcum teſtæ interioris, transverſim fere, ſub radio albo poſtico extenditur *coſta* alba, elevata, teretiuſcula, ſolida, quæ baſi confluit cum margine & format crucem, ad cujus baſin cavitas exſculpta eſt.

17.

17. SOLEN teſta ovali oblique ſtriata. *Syſt.* ſtrigilatus.
Nat. 10. *p.* 673. *n.* 29.

Gualt. teſt. t. 91. *f. C.*

TESTA ovalis, oblonga, convexa, utrinque hians, facie præcedentis, ſed craſſior, exſculpta ſtriis longitudinalibus, obliique ductis, imbricatis, acutis verſus apicem. *Intus* lævis, glabra, absque coſta transverſali.

CARDO *Dente* unico in altera, duobus vero in oppoſita latiuſculis, a quibus exit margo prominens ſub hymene.

VARIETAS *α. alba* duplo longior quam lata.

β. incarnata triplo longior quam lata, radiis duobus albidis, a Cardine ad marginem exteriorem ductis.

18. SOLEN teſta ovata membranacea inflata pilosa, cardinis coſta falcata. *Syſt. Nat.* 10. *p.* 673. *n.* 30. anatinus.

Rumph. muſ. t. 45. *f. O.* Roſtrum anatis.

TESTA ovata, inflata, tenuiſſima, pellucida, alba, fragilis & quaſi membranacea, extremitate poſtica minore parum hiante.

CARDO *Dente* unico, obtuſo, in utraque teſta.

Coſta e dente exiens, brevis, transverſa, membranacea, acute falciformis.

TEL-

TELLINA.

Gargadia. 19. TELLINA testa subrotunda compressa antice rugosa, rima dentata. *Syst. Nat.* 10. *p.* 674. *n.* 33.

Rumph. mus. t. 43. *f. N.* Remies gargadica.

TESTA subrotunda, alba, parva, parum antice flexa, dimidio latere versus anticam partem transversim rugosa.

RIMA hians margine tenuiore, pubescente denticulis circiter septem erectis obtusiusculis. *Nymphæ* inflexæ.

ANI vestigium canalis est.

CARDINIS *Dentes* parvi.

Marginis posticum latus remotum, intra fossulam alterius valvulæ sese insinuans.

Lingva felis. 20. TELLINA testa subovata scabra: squamulis lunatis quincuncialibus. *Syst. Nat.* 10. *p.* 674. *n.* 34.

Rumph. mus. t. 45. *f. G.*

Gualt. test. t. 76. *f. B.*

TESTA subovata & sesquilatior quam longa, alba radiis rufescentibus pallidis, undique scabra squamis erectis fornicatis acutis in quincuncem sparsis, antice inflexa & angulum formans.

Simillima T. scobinatæ *Rima*, *Nymphis*, *Ano*, *Dentibus* & reliquis; diversa sola figura sesquilatiore quam longa & colore.

21.

21. TELLINA teſta ovata: ſtriis transverſis recurvatis, dentibus lateralibus prominulis. *Syſt. Nat.* 10. *p.* 674. *n.* 35. virgata.

Rumph. muſ. 45. *f H.* Tellina virgata.

Argenv. conch. t. 25. *f. A.* Tellina faſciis roſeis.

Testa ovata, albida, radiis rufis, pluribus, extrorſum latioribus, a Cardine verſus peripheriam ductis; Striæ transverſales, confertæ, retrorſum ſubimbricatæ, æquales.

Intus radiis obſolete incarnatis picta.

Latus ſuturæ, rimæ proximum, inflexum verſus dextrum.

Rima Labris rugoſis & ſcabris.

Nymphis oblongis, extremo ſupremo angulatis, prominulis, ſed non ultra teſtam, hymene tectis.

Anus eſt rima concava.

Cardo utrinque Dentibus tribus, quorum duo primores propiores, transverſi cum cavitate pro oppoſitis dentibus.

Tertius dens, in margine utriusque ſuturæ, exſerens intus dentem planum longitudinalem, ſpatio remotum a dentibus cardinis.

Variat α. colore albo radiis rufis:

β. -- flavo radiis rufis:

γ. -- pallido radiis rufis cingulo albido.

22.

gari. 22. TELLINA teſta ovali: ſtriis transverſis recurvatis, dentibus lateralibus obſoletis. *Syſt. Nat.* 10. *p.* 674. *n.* 36.

Rumph. muſ. t. 45. *f. G.* Tellina gari.

Argenv. conch. t. 25. *f. F.*

TESTA facies T. virgatæ, ſed minor & anguſtior, antice inflexa & valde rugoſa.

Color lividus, cinereus aut albus faſciis radiantibus obſoletis, cæruleis aut rubris.

Striæ transverſæ retrorſum ſubimbricatæ; inter has ſtrias aliæ ſtriæ anomalæ in medio laterum, diſtantes, ſecant oblique ad angulum acutum ſtrias ordinarias confertiores, quæ nota huic ſpecialis.

RIMA *Nymphis* extra prominentibus quaſi truncatis.

CARDO in altera teſta ex *Dentibus* primoribus duobus emarginatis: in altera teſta unicus emarginatus.

Marginales Dentes nulli, nec in ſutura poſtica, neque in antica, licet ſub Nymphis margo ſæpius tuberculo obſoleto promineat.

VARIETAS α. cinerea radiis fuſcis.

β. caneſcens radiis violaceis.

γ. ſubviolacea albo maculata radiis purpuraſcentibus.

δ. albido-rufeſcens radiis rubris.

23.

23. TELLINA testa ovali lævi, nymphis prominentibus. *Syst. Nat.* 10. *p.* 675. *n.* 38. albida.

Testa magnitudine ovi, albo-subincarnata; intus alba, extus striis transversis distantibus obsoletis.

Latus anticum vix manifeste flexum, nec acuminatum. Sutura antica & postica a cardine, notata lineis parvis transversis rufis.

Rima *Nymphis* albis, oblongis, extra testam prominulis, terminatis angulo.

Cardo utrinque ex *Dentibus* tribus; quorum duo primores in altera testa coadunati, sed dentes marginales in hac nulli.

24. TELLINA testa ovali, pube scabra, rima serrata. *Syst. Nat.* 10. *p.* 675. *n.* 39. *Rumph. mus. t.* 45. *f. K.* Folium. foliacea.

Argenv. conch. t. 25. *f. E.*

Testa ovalis, lutea, subtilissime transversim striata, antice inflexa angulo distingvente partem anticam a lateribus.

Pars antica valde scabra s. striata punctis minimis acutis.

Rimæ margo acutus, patulus, serratus denticulis plurimis acutis.

Nymphæ obliteratæ, inflexæ.

Ani nullum vestigium; Locos clausus in suturam acutam.

Cardinis *Dentes* primores 2: altero bifido, altero antico elongato.

Marginales nulli.

25.

planata. 25. TELLINA testa ovata compressa transversim substriata: marginibus acutis, pube subtomentosa. *Syst. Nat.* 10. *p.* 675. *n.* 40.

Gualt. test. t. 89. *f. G.*

Testa pellucida, magis plana quam in reliquis, (excepta pube incarnata), tenera, striata subtilissime striis nonnullis, exacte ovata, vix manifeste angulata & antice minus flexa, quam in reliquis.

Margo undique acutissimus, etiam ad futuras, nec inflexus, sed in aciem veluti culter acutus.

Rima *Nymphis* prominulis carinosis.

Cardinis *Dentes* primores 2 parvi, emarginati, proximi; marginales Dentes nulli.

lævigata. 26. TELLINA testa ovata lævigata, dentibus lateralibus marginatis, pube striatoscabra, nymphis inflexis. *Syst. Nat.* 10. *p.* 675. *n.* 41.

Rumph. mus. t. 45 *f. I.* Tellina lævis.

Testa magnitudine ovi vel major, crassa, lævis, vix manifeste transversim striata. Extus radiato-incarnata s. rubro-exalbida; intus saturate incarnata s. late rubra.

Cardo ex *Dentibus* primoribus duobus in singula valvula; at marginalis posterior vix remotus a Dentibus Cardinis. Dens etiam intra Nymphas.

27.

27. TELLINA testa oblonga longitudinaliter substriata, sutura ani canaliculata. *Syst. Nat.* 10. *p.* 675. *n.* 42. *Fn. suec.* 2. *n.* 2132. radiata.

Testa lævis striis longitudinalibus obsoletis vixque manifestis, albida cingulis aut radiis incarnatis, ovali-oblonga, non tamen rostrata, parum antice curvata.
Rima *Nymphis* apice hiantibus, non prominentibus.
Anus fossula oblonga, ubi sutura postica inflexa.
Cardinis *Dentes* primores 2; altero angustiore bifido, altero latiore simplici.
Marginales utrinque solitarii, remoti a Cardinalibus, distincti fossula in ipso margine.

28. TELLINA testa oblonga: antice angulato-rostrata, ano rimaque subserrata. *Syst. Nat.* 10. *p.* 675. *n.* 43. *Rumph. mus. t.* 45. *f. L.* Petasunculus. rostrata.

Testa oblonga, planiuscula striis transversis, retrorsum subimbricatis, subtilissimis, antice attenuata & elongata quasi in rostrum obliquum, emarginatum: lobo superiore breviore.
Color carneus s. flavus & albus.
Rima Labiis rugosis, angulo distinctis, obsolete dentatis.
Nymphis non prominentibus, sed potius intractis.
Cardinis *Dentes* primores parvi: altero bifido; Dens marginis tam anticus quam posticus parvus, oblongus, remotus, fossula distinctus.
Varietas α. flava rostro breviore.
β. incarnata rostro breviore.
γ. incarnata rostro longiore.
δ. alba rostro longiore.
Anus planus, lævis, longitudinalis, utrinque a testa distinctus angulo denticulato s. subserrato.

Remies. 29. TELLINA teſta ſuborbiculata compreſſa rugoſa. *Syſt. Nat.* 10. *p.* 676. *n.* 48. *Rumph. muſ. t.* 43. *f. I.* Remies. *Gualt. teſt. t.* 76. *f. F.*

TESTA craſſa, ſublentiformis, alba; rugis lævibus ſolidis, antice parum inflexa.

RIMA obtuſa, hians, *Nymphis* obtuſis longitudine labiorum.

ANUS foſſula ſenſim inflexa.

CARDINIS *Dentes* primores duo, remoti: altero bifido.

Marginis ad utramque ſuturam Dens, quorum poſticus vix remotus a Cardine; anticus vero ad finem nympharum.

ſcobinata. 30. TELLINA teſta lenticulari ſcabra: ſquamis lunatis quincuncialibus. *Syſt. Nat.* 10. *p.* 676. *n.* 49. *Gualt. teſt. t.* 76. *f. E.*

TESTA craſſa ſublentiformis orbiculata, pallida maculis griſeis, antice inflexa, undique ſcabra ſquamis erectis, fornicatis, obtuſis, in quincuncem diſperſis.

RIMA quaſi exciſa, *Nymphis* oblongis, labiis brevioribus.

ANI loco canalis exciſus, unde teſta quaſi mutilata.

CARDINIS *Dentes* primores duo; uno integro parvo, altero bifido.

Marginalis utrinque ad ſuturam, validus, remotus; in altera teſta profunda foſſula diſtinctus.

CAR-

CARDIUM.

31. CARDIUM teſta gibba æquivalvi: coſtis elevatis carinatis concavis membranaceis. *Syſt. Nat.* 10. *p.* 678. *n.* 58. costatum.

Rumph. muſ. t. 48. *f.* 6.

Gualt. teſt. t. 72. *f. D.*

Argenv. conch. t. 26. *f. A.*

TESTA albiſſima, admodum gibba & ventricoſa coſtis 11. ſ. 12 elevatis, carinato-membranaceis, longitudinalibus, integris, diſtantibus: ſtriis duabus inter ſingulas coſtas. Margo dentatus ungvibus ex coſtis productis intus cavis & apertis, nec ſectis per diſcum teſtæ.

Cavitas ſulcis pluribus latis profundis exarata, minus vero ad latera ſulcata.

Sutura antica hians.

NATES incurvatæ ſe invicem premunt.

RIMA brevis: *Nymphis* obtuſis breviſſimis apice angulatis & extrorſum flexis.

ANUS margine deſinens in ſuturam rectam.

CARDINIS *Dentes* primores duo, recti, acuti, in oppoſito vero Cardine unicus.

Marginalis utrinque ſolitarius, compreſſus, acutiuſculus, foſſula diſtinctus; at vero ille ſub ano quaſi duplex.

Cardiſſa. 32. CARDIUM teſta cordata: valvulis compreſſis dentato-carinatis, natibus approximatis. *Syſt. Nat.* 10. *p.* 678. *n.* 59.
Rumph. muſ. t. 42. *f. E.* Cardiſſa.
Gualt. teſt. t. 84. *f. B. C. D.*
Argenv. conch. t. 26. *f. I.* Cor veneris.

Testa alba, cordiformis, transverſim bivalvis: Valvulæ naviculares: latere altero plano-convexo, altero concavo diſco elevato; carina ſæpius ſubſerrata marginibus tenuibus dentatis. Superficies longitudinaliter ſulcata: ſulcis diſtantibus: ſuperioribus ſcabris.

Nates rotundatæ, valde compreſſæ in aciem, inflexæ & plus quam contiguæ, ut altera alteri ſubjaceat, unde anus & rima carent apertura.

Rima cordata, brevis, in latere plano ſub umbone, *Nymphis* obtuſis, vix prominentibus.

Anus impreſſus ſub umbonibus.

Cardinis *Dentes* primores duo, ſubcontigui; marginis utrinque unicus, compreſſus, remotus, validus, foſſula diſtinctus.

Variat α. colore rufo.
β. Carina Valvularum acuta, integerrima.

hemicardium. 33. CARDIUM teſta cordata ſubquadrilatera: valvulis carinatis, natibus diſtantibus. *Syſt. Nat.* 10. *p.* 678. *n.* 60.
Rumph. muſ. t. 44. *f. H.*

Structura C. Cardiſſæ, at faſciis diverſa.

Testa alba, transverſim bivalvis.
Valvulæ naviculares, latere altero dilatato.
Latus planius ſ. anterius ſulcatum: ſulcis excavato-punctatis.
Latus convexum ſupra retuſum, ſulcis convexis: callis fere transverſim imbricatis.
Carina anterior & exterior obtuſe dentata.

Nates recta incurvati, vix ſeſe tangentes.

Rima ovata *Nymphis* prominulis.

Anus nullus, cujus loco ſpatium cordatum planum.

Cardinis *Dentes* ut in C. Cardiſſa.

34.

34. CARDIUM teſta ſubcordata ſubangulata: valvulis angulatis ſulcatis lævibus. *Syſt. Nat.* 10. *p.* 678. *n.* 61. medium.

Affinitate ſumma accedit ad C. hemicardium, ut medium ſit inter C. hemicardium & C. Cardiſſa, nec aliter differat, quam colore ex albo purpuraſcente vario, ſulcis absque aculeis. Figura minus tetragona, ſed potius angulis obſoletis.

Testa ſubcordata, antice retuſa, longitudinaliter ſtriato-ſulcata ſtriis muricato-crenatis verſus exteriora. Margo denticulatus, antice vero valide ſerratus.

Nates inflexæ.

Rima minuta *Nymphis* prominulis.

Anus obſoletus.

Cardinis Dens primarius unicus ſubulatus validus erectus. Laterales ſolitarii, foſſula diſtincti.

Variat *α*. alba.
β. rufa albo-maculata.

35. CARDIUM teſta ſubcordata: ſulcis convexis linea exaratis: exterius aculeato-ciliatis. *Syſt. Nat.* 10. *p.* 679. *n.* 62. muricatum.
Gualt. teſt. t. 72. *f. A.*
Argenv. conch. t. 26. *f. B.*

Testa cordata, poſtice magis gibba, convexa, ſulcata: ſulcis obtuſis 21, linea exaratis, diſtantibus verſus marginem exteriorem repando-dentatum, Dentibus acutis diſtantibus compreſſis.

Color extus rufeſcens; intus albicans ſulcis plurimis.

Rima ovato-oblonga, hians, *Nymphis* nudis oblongis.

Ani area ovata, marginibus prominulis.

Cardinis *Dentes* primores in altera valvula duo; in altera vero unicus: alterno minore. Marginalis utrinque unicus, compreſſus, ad angulum rectum formatus.

echinatum. 36. CARDIUM testa subcordata, sulcis exaratis linea ciliata aculeis inflexis plurimis. *Syst. Nat.* 10. *p.* 679. *n.* 63. *En. suec.* 2139.

Gualt. test. t. 72. *f. B.*

Testa cordata, umbonibus gibba, exarata sulcis 19 diffantibus, elevatis, acuto-carinatis, ciliatis spinis parvis, sæpius 12 erectis subulatis, interstitiis sulcorum transversim striatis, at non in medio testæ. Margo dentibus obtusis: alternis erectioribus; alternis interioribus apice a se invicem separatis. Intus alba est, uti extus sulcata.

Rima hians brevis: *Nymphis* prominulis, brevioribus.

Anus lævis sutura simplici prominula.

Cardinis *Dentes* primores bini recurvi; altero minore. Marginis utrinque solitarius, compressus, fossula distinctus.

Præcedenti valde affinis.

tuberculatum. 37. CARDIUM testa subcordata: sulcis obtusis nodosis transversim striatis. *Syst. Nat.* 10. *p.* 679. *n.* 65.

Rumph. mus. t. 48. *f.* 11.

Argenv. conch. t. 26. *f. L.*

Testa magnitudine & figura C. echinati, sulcata sulcis 23 remotis, obtusis, una cum interstitiis transversim striatis, versus latera & eorum extrema notatis nodis aliquot obtusis. Margo dentatus dentibus anterioribus cum exterioribus cohærentibus.

Color albidus fasciis aliquot luteo-fuscis.

Testa simillima C. echinato fere omnibus etiam Rima, Cardine, Dentibus, diversa tantum Colore, striis, aculeis.

38.

38. CARDIUM testa cordata: sulcis squamis fornicatis imbricatis. *Syst. Nat.* 10. *p.* 679. *n.* 66. cordia.

Rumph. mus. t. 48. *f.* 9.

Argenv. conch. t. 26. *f. M.*

TESTA magna, capax, intus fundo ferrugineo, extus albida maculis incarnatis, obovata sulcis 35 profundis, parallelis, obtusis, imbricatis, squamis ovatis, fornicatis, erectis, pellucidis, altero latere latioribus.

Margines flavescentes:

Laterales valide serrati: Exteriores Dentes simplices, validi, tetragoni, distantes.

RIMA breviſſima, hians *Nymphis* prominulis angulo recto.

ANUS obsoletus, margine prominulus.

CARDINIS *Dentes* primores in altera valvula 2; in altera 1.

Marginales utrinque solitarii, latiores, fossula distincti.

Fragum. 39. CARDIUM teſta ſubcordata ſubangulata: ſulcis notatis lunulis elevatis. *Syſt. Nat.* 10. *p.* 679. *n.* 67.

Rumph. muſ. t. 44. *f. G.* Fragum album.

Gualt. teſt. t. 71. *f. N.*

TESTA albida, magnitudine Pruni, ſubcordata; antice figura cordis, planiuſculi, medio prominuli; lateribus figura cordis dimidiati, ſulcata: ſulcis dorſo notatis lunulis elevatis transverſis flaveſcentibus ſ. rubris.

Valvulæ ſemicordatæ, intus albæ fundo ſæpe flaveſcente; margine poſtico valde ſerrato; antico denticulato: denticulis diſtantibus.

RIMA parva *Nymphis* prominulis.

NATES minime obliquæ.

ANUS marginibus elevatis.

CARDINIS *Dentes* primores duo minimi, recurvati; Marginales ſolitarii, diſtantes, latiores, foſſula diſtincti.

Unedo. 40. CARDIUM teſta ſubcordata: ſulcis lunulis coloratis. *Syſt. Nat.* 10. *p.* 680. *n.* 68.

Rumph. muſ. t. 44. *f. F.*

Argenv. conch. t. 26. *f. N.*

Habitus & facies C. Fragi, ſed TESTA craſſa, ponderoſa, minus angulata, decuplo major, at ſulci notati dorſo lunulis elevatis transverſis rubris.

RIMA patens Labio altero ſuperne alteri incumbente (quod non in C. Frago obtinet), *Nymphis* nudis.

ANI area nuda.

41.

41. CARDIUM teſta ſubcordata ſulcata lateribus muricata. *Syſt. Nat.* 10. *p.* 680. *n.* 69. muricatum.

Testa ſubcordata, minus tumida, utroque margine laterali ſerrata, extus dentata margine ſanguineo; ſulci acuti lateribus muricatis, præſertim ad latera teſtæ.

Color extus albo-flaveſcens, rubro-faſciatus; intus albidus fundo rubicundo.

Nates regulares.

Rima patula *Nymphis* nudis obtuſis brevibus.

Ani area margine prominens.

Cardinis *Dentes* utrinque unus; marginis ſolitarii, foſſula diſtincti.

42. CARDIUM teſta oblonga: ſulcis angulatis latere ſerratis. *Syſt. Nat.* 10. *p.* 680. *n.* 70. magnum.

Testa a Cardine ad extimum marginem oblonga, ovata, magnitudine manus ſulcis 19 angulatis, retrorſum crenatis. Margines intus rubicundi, apice dentati, lateribus ſerrati.

Color pallidus, intus albus.

Rima, *Anus*, *Dentes* ut in C. muricato.

flavum. 43. CARDIUM testa subovata sulcata: latere anteriore scabro, posteriore dentato. *Syst. Nat.* 10. *p.* 680. *n.* 71.

Testa subovata, lato-ovata, flava, latere anteriore alba; sulcata sulcis posteriori latere testæ nodulis crenatis.

Margines subserrati: exteriore dentato, non rubro.

Color intus albus, fundo interdum rufescente.

Rima hians *Nymphis* nudis.

Anus impressus, oblongus, clausus.

Cardinis *Dentes* 2 primores, unico utrinque.

44. CARDIUM testa obovata: striis obsoletis longitudinalibus. *Syst. Nat.* 10. *p.* 680. *n.* 72.

Habitus præcedentium; sed striæ loco sulcorum circiter 56.

Color rufus albo-maculatu

45.

45. CARDIUM teſta obovata lævi ſtriis obſoletis, margine interiore ſerrato. *Syſt. Nat.* 10. *p.* 680. *n.* 73. ferratum.

Testa a Cardine ad apicem oblonga, obovata, lævis absque ſtriis, flava, extrorſum planior, verſus baſin minus quam in reliquis gibba, margine exteriore ſubtiliſſime intus crenata; anteriore profundius extrorſum ſerrata.

Cavitas alba, ſub umbonibus flaveſcens.

Nates ad nullum latus flexæ.

Rima patens *Nymphis* prominulis.

Anus obliteratus, curvatus.

Cardinis *Dentes* primores duo utrinque, æquales, parvi. Marginis utrinque ſolitarii, foſſula diſtincti.

46. CARDIUM teſta ovata lævi, rima anoque obſolete ſtriatis. *Syſt. Nat.* 10. *p.* 680. *n.* 74. triſte.

Testa triangulari-ovata, lævis absque ſtriis, cinerea.

Color triſtis exoletus, cinereus, parum albo radiatus.

Nates reflexæ diſtingvunt anum a vulva.

Rima clauſa, oblique obſolete ſtriata, vix diſcernenda ab ano.

Ani regio Rimæ ſimillima.

Cardinis *Dentes* duo primores: Marginis remoti plani.

47.

pectinatum. 47. CARDIUM teſta ſubcordata pectinata. *Syſt. Nat.* 10. *p.* 681. *n.* 79.

Gualt. teſt. t. 75. *f. A.*

TESTA ſubcordata, gibba, alba, ſ. rubra, ſingulari modo ſtriata.

Striæ longitudinales ſunt in latere anteriore: transverſales ad angulum acutum tangunt longitudinales in latere poſteriore.

Hæ ſtriæ ſunt diſtantes, ſubtiliſſime dum digiti deorſum ducuntur ſcabræ, non vero ſurſum.

Margo exterior Denticulis minimis, confertis, æqualibus, albis; nec alternis patentibus.

Cavitas albicans, ſub umbonibus flava.

RIMA hians *Nymphis* prominulis.

ANUS ovatus, impreſſus marginibus prominulis.

CARDINIS *Dentes* ut in duobus præcedentibus.

DO-

DONAX.

48. DONAX teſta triangulo-cordata vulva plana. *Syſt. Nat.* 10. *p.* 686. *n.* 103. *Argenv. conch. t.* 24. *f. L.* Scortum.

TESTA ſubtriangularis, antice plana, poſtice rotundata. Striæ transverſales, ſubcrenulatæ, quarum tertia tantum quæque in area poſteriore excurrens ad marginem; in hac area ſtriæ etiam longitudinales decuſſantes; in his transverſales ſtriæ elevatæ in aciem. Antica pars teſtæ ad vulvam omnino plana, lævis, angulo recto diſtincta; hic angulus verſus exteriora fere dentatus ſquamis.

NATES inflexæ, læves.

VULVA parva, *Nymphis* breviſſimis.

CARDO Dentibus primoribus duobus, foſſula diſtinctis. Laterales ſub ano vulvaque poſiti, foſſula diſtincti.

49. DONAX teſta antice ſpinis ciliata. *Syſt. Nat.* 10. *p.* 682. *n.* 83. pubeſcens.

TESTA ſubtriangularis, convexa, decuſſatim argute ſtriata; poſtice ſtriis transverſalibus membranaceis explanatis ſpinoſo-hiſpida. Antice plana & lateribus angulo carinata, qui angulus verſus apicem ſpinis ex ſtriis enatis, compreſſis, membranaceis ciliatus, ut in V. Dione. Intus glabra, nitida, margine integerrimo.

NATES rectæ, incurvatæ.

RIMA hians, ovata, parva, *Nymphis* cordatis nudis.

ANUS ovato-oblongus, glaber.

CARDINIS *Dentes* in altera teſta unicus, in altera duo. Marginales ſolitarii compreſſi, ſed tantum in altera teſta.

50.

rugoſa. 50. DONAX teſta antice rugoſa, marginibus crenatis. *Syſt. Nat.* 10. *p.* 682. *n.* 84.

Gualt. teſt. t. 89. *f. D.*

TESTA cuneiformis, compreſſa, ſubovata, violacea, ſtriata; antice truncato-gibba, rugis crenulatis. Margo introrſum denticulatus, antice magis ſerratus. Intus ſubviolacea eſt.

RIMA ovata, hians etiam inter Nymphas. *Nymphæ* baſi divaricatæ, albæ, rima breviores, apicibus prominulæ.

ANUS nullus, ſed ſutura ſimplex.

CARDINIS *Dentes* bini: in altera valvula ſimplices, in altera didymi. Marginales nulli.

Truncu-lus. 51. DONAX teſta antice lævi, intus violacea, marginibus crenatis. *Syſt. Nat.* 10. *p.* 682. *n.* 85. *Fn. ſuec.* 2142.

Bonan. recr. 2. *t.* 47.

Klein. oſtr. t. 11. *f.* 61.

TESTA parva, oblonga, albo-violacea; antice obliquè antrorſum truncata, ſubgibba, glabra. Margines ſubtiliſſime crenati, antice parum hiantes.

RIMA ovata, hians *Nymphis* acutis brevibus intractis.

CARDINIS *Dentes* ut in D. rugoſa, cui valde affinis, ſed vulvæ regio lævis.

52.

52. DONAX teſta cuneiformi, marginibus integerrimis. *Syſt. Nat.* 10. *p.* 683. *n.* 87. cuneata.

TESTA cuneiformis, compreſſa, violaceo & albo radiata, at vix duæ concolores, antice obtuſa, glabra aut ſcabra. Margo integerrimus, clauſus.

RIMA hians Labiis apice incumbentibus. *Nymphæ* breves.

CARDINIS *Dentes* ut in D. rugoſa.

Differt a duabus præcedentibus tantum margine non crenato.

53. DONAX teſta ovata compreſſa lævi ſcripta lineis purpureis undatis, rima acuta, marginibus crenulatis. *Syſt. Nat.* 10. *p.* 683. *n.* 88. ſcripta.

Rumph. muſ. t. 43. *f. L. M.*

Gualt. teſt. t. 8. *f. Q.*

TESTA ovalis, fere cuneiformi-compreſſa, transverſim vix ſtriata, lævis, nitida, alba, ſcripta Ziczac læte purpurea, antice violacea. Margo interne crenulatus.

NATES acutiuſculæ, reflexæ.

RIMA diductis labiis profunde & acute hians ſinu exciſo cymbiformi. *Nymphæ* minimæ, depreſſæ, linea diſtinctæ a labiis, rima longe breviores.

ANI area linearis, canaliculata, glabra.

CARDINIS *Dentes* primores 2 ſ. 3, parvi, obliqui, laminoſi ſ. compreſſi. Marginalis nullus ſub vulva; unus ſub ano oblongus, foſſula diſtinctus.

54.